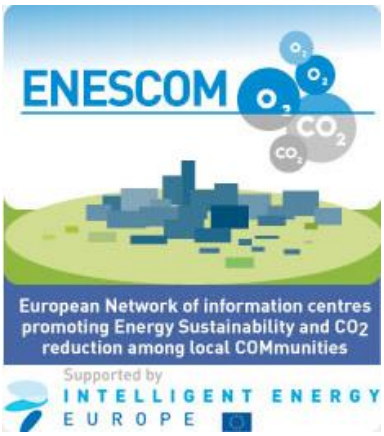
Supported by INTELLIGENT ENERGY EUROPE

Common Report with a Census of present Local Plans and Regulations, Projects and Actions targeting 20 different European Regions

Report 2 of ENESCOM Project financed by the IEE program



List of nations and partners

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1 Introduction

1.1 Objectives of report

1.1.1 General objectives

The common report on Local Plans and Regulations, projects and actions targeting 20 different European regions is analytical material which can serve as a basis at the regional level for public administrators, urban planners, policy makers, technicians, entrepreneurs, citizens, transport operators and other regional institutions and as a guide and starting point for municipalities which are intent on entering into the Covenant of Mayors (CoM). The common report summarises much interesting information between regions of different countries as well as significant data assessment from 20 regions NUTS II. The common report has come out of the process of collecting information on each of the individual partners participating in the project ENESCOM. The Czech Technical University in Prague has put together the data into one consistent report and has carried out their evaluation and comparative analysis.

1.1.2 Specific objectives

This Common Report is a part of the task solution of the international project ENESCOM: European Network of Information Centers promoting Energy Sustainability and CO_2 reduction among local Communities (the acronym of the project is ENESCOM).

The project is financed by Community program IEE - The Intelligent Energy-Europe Programme by the Contract N°: IEE/09/667/SI2.558230.

Coordinator of the Project is the Union of Municipalities Samoggia Valley.

The project ENESCOM intends to promote widespread information and dissemination activities targeting 14 different EU countries aiming at achieving the following main objectives:

- To increase the number of EU local communities engaged in the mitigation of climate change through the promotion of, and adhesion to the Covenant of Mayors' initiative
- To develop capacity building in energy sustainability and promote the adoption of intelligent local sustainable energy policies (creation and implementation of SEAPs)
- To promote the integration and institutionalization of energy efficiency, saving and use of renewable energy sources (energy-efficient behaviour and lifestyles) within EU local communities, targeting all relevant stakeholders (public administration, businesses, citizens…)

The objective will be reached by means of a 30-months joint cooperation leading to the creation of a network of regional and local front offices with the main role of informing and advising users on energy matters based also on the analysis/assessment of the local situation, to promote and facilitate local authorities in the adhesion to the Covenant of Mayors and preparation of SEAPs/roadmaps, and to organize and run several training, dissemination and awareness-raising activities tailored to different target beneficiaries (students, citizens, stakeholders, policy-makers). This activity will be supported by the

creation of specific information and communication tools (i.e. website), materials (i.e. brochure, e-newsletter) and actions involving also the media. The widespread involvement of Pioneers of the Covenant of Mayors and disseminators/multipliers at local, regional, national and international levels will contribute to the achievement of the main project outputs and results, creating the basis for multiplying the effect-transferability-replication of actions and knowledge.

Table 1: Partners of the Project

Participant name	Participant short name	Country
Unione di Comuni Valle del Samoggia	Unione Samoggia	IT
Assocjazzjoni Kunsilli Lokali	LCA	MT
Kelet-magyarországi európai Kezdeményezések Alapitvány	KEK Foundation	HU
České vysoké učení technické v Praze	CTU in Prague	CZ
Anaptiksiaki Dimotiki Epichirisi Patras S.A.	A.D.E.P. S.A.	EL
Progresit, občianske združenie	Progresit	SK
Regionalna razvojna agencija Mura d.o.o.	RRA Mura d.o.o.	SI
Stowarzyszenie Centrum Wspierania Edukacji i Przedsiębiorczości	CEES	PL
Iniciativas Casmor S.L.	IC	ES
Powys County Council	PCC	UK
Agentia Pentru Dezvoltare Regionala Centru	CENTRU RDA	RO
Fédération Régionale des Centres d'Initiatives pour Valoriser l'Agriculture et le Milieu rural de Bretagne	FRCIVAM Bretagne	FR
INFORMO – Udruga za poticanje zapošljavanja, stručnog usavršavanja i obrazovanja	INFORMO	HR
Agência Cascais Energia	ACE	PT

1.2 EU policy context

The European Union (EU) faces serious energy challenges concerning sustainability and greenhouse gas emissions as well as security of supply, import dependence and the competitiveness and effective implementation of the internal energy market. **A European Energy Policy** is acknowledged as the most effective response to these challenges, which are faced by all Member States.

The project ENESCOM should contribute to solve the three aspects of the European Energy Policy (Source: An Energy Policy for Europe, Brussels, 10.1.2007 (COM) 2007).

- **Aspect of reducing greenhouse gas emissions**

Energy accounts for 80% of all greenhouse gas emissions in the EU. Determined to fight against climate change, the EU is committed to reducing its own emissions by at least 20% by 2020. Of course, reducing greenhouse gas emissions involves using less energy and using more clean energy.

- **Aspect of energy efficiency**

Reducing its energy consumption by 20% by 2020 is the objective the EU has set itself in its Action Plan for Energy Efficiency (2007-2012). Concrete effort needs to be made to achieve this objective, in particular with respect to energy saving in the transport sector, the development of minimum efficiency requirements for energy-using appliances, awareness-raising amongst consumers about sensible and economic energy use, improving the efficiency of the production, transport and distribution of heating and electricity and also developing energy technologies and improving the energy performance of buildings.

- **Aspect of renewable energy**

The use of renewable energies (wind power, solar and photovoltaic energy, biomass and biofuels, geothermal energy and heat-pump systems) undeniably contributes to limiting climate change. Furthermore, it plays a part in securing energy supply and creating employment in Europe, thanks to the increase in the production and consumption of local energy. To increase the use of renewable energy sources, in its Renewable Energies Roadmap the EU has set itself the objective of increasing the proportion of renewable energies in its energy mix by 20% by 2020.

2 Analysis

2.1 Overview

The topics of greenhouse gas emissions, energy consumption and renewable energy sources have been discussed throughout the whole of Europe in the past decades. The entire topic has many different sides and different points of view. It is important to bear in mind that although there are many objectives and legislative tools in the EU, each country has to face different obstacles and can use different opportunities. This results in two main matters to consider:

1) To understand each national situation (which is important in case of cooperation), one has to know its characteristics - social, cultural, historical, as well as economic and environmental conditions and hazards (risks and opportunities).
2) Each national situation is, from one point of view, reflected through its authorities and other organizations. These organizations affect the plans and regulations of each examined region and there can be barriers identified in the implementation process itself.

When these two topics are considered, one can get a perspective not only on each national situation and its associated legislation, but can also understand the context of change and behaviour on the basis of an action-reaction principle. This knowledge can be used to improve or enhance own plans and regulations on any regional level, to learn from mistakes and to look for better problem solutions and ways to overcome barriers. When this happens, it may lead to an improving situation in greenhouse gas emissions, energy consumption and renewable energy usage and that is why the following chapter 2.3 not only summarizes each partner's plans and regulations on the national and regional level, but also mentions recognised barriers and tries to show this valuable information in its deeper context.

2.2 Methodological note

The main objective was to develop a simple system for data and information collection (further referred to only as D&I), with their summary and evaluation made intelligible and feasible for all project partners.

A considerable significance has been given to the unity and comparability of D&I from the different regions and the possibility to communicate about the project issues at a distance with the partners (by e-mail and telephone). D&I of the same kind and units delivered by the project partners are of crucial importance for elaboration of the Common Report 2.

Collection of D&I in Target Regions was requested in the project proposal, but the regions have not been defined. To ensure comparability of the 20 Target Regions it was decided to use the NUTS 2 territorial unit. For the purpose of Report 2, national and municipal data were used as well.

For compilation of Common Report 2 it was necessary to elaborate two Tables and one Analysis concerning the target Regions for each project partner.

2.2.1.1Elaboration of Tables with D&I concerned with

- Lists of national, regional and municipal regulations and plans efficiency - Table 10
- Evaluation of existing barriers to energy sustainability and reduction of CO_2 emissions and the incentives - Table 11

These Tables give an outline regarding the situation in the 20 Target Regions in the 14 countries participating in the project. There were prepared templates for the Tables (in Microsoft Office Excel format) and they are included in the Annex of tables and documents of this report.

2.2.1.1.1 D&I collection principles

- Collect only proved and verified statements about Target Regions.
- When no verified statements are available then ensure professionally qualified assessments, and always mention the source.
- Put the collected D&I into the attached templates.

The Tables contain cells for particular D&I as well space for relevant remarks, summaries, evaluations and indications about data sources.

2.2.1.1.2 D&I summary and evaluation

The bare D&I, without their simple processing and comments at least, do not have generally the ability to give a clear survey. Therefore it was decided to summarize the collected D&I in such a way that they give an insight into the topic.

2.2.1.2Elaboration of Analysis concerned with

- Pertinence of National and Regional Plans and Regulations - Analysis 4

This Analysis represents the process of breaking the complex topic into smaller parts to gain a better understanding and completed with clear conclusions.

To ensure comparability of D&I from all involved Target Regions there have been drafted certain scopes for the required analyses and also there is defined the minimum

number of pages. The template for the required Analysis is in the Annex of tables and documents of this report.

2.2.1.2.1 Principles for the Analyses processing

- Compile the Analyses according to the agreed contents and form.
- Carry them out as briefly as possible with clear statements and arguments (tables, graphs, schemas …).
- Mention the Tables from which the D&I have been taken.
- The minimum was recommended 6 Pages (font size 12, type Times New Roman, standard page with 1 800 characters which corresponds to 30 printed lines), the maximum was recommended as 10 pages.

2.2.1.2.2 Guidelines for the Analyses

The guidelines contain the contents and additional explanation and recommendations concerning for example, references. There is in the footnotes of the templates a request for a minimum extent for the Analyses.

2.2.1.3Obstacles encountered

During the data gathering process some obstacles were encountered and had a direct impact on results. There were two results from the obstacles encountered:

1) Some obstacles resulted in the discarding of a partner from report 2 (with no other option since the problem was that no data were provided).
2) The other obstacles were the result of diversity in individual partner's analyses, so they could not be directly compared. Since comparison was not the main focus of this report, such obstacles as a result can be considered acceptable. But it has to be understood that most information is discovered inside the different behaviour of participating partners (see chapter 2.1).

2.2.1.3.1 Data accessibility and comprehensiveness

Data were often not available to the partner. In the case that no (or insufficient) data were available at all then the considered partner could not participate in Report 2. This was the case with Italy, Greece, Slovakia and Spain.

The common situation with other countries was that data were available in sufficient amount, but there was a lack of some specific information. Therefore it is possible that in the following chapter 2.3, where each partner is described, there are occasionally some subchapters missing, or there are some regulations, plans and barriers not fully explained, but they are still added since even information that a specific plan or regulation is present may be valuable.

2.2.1.3.2 Data relevance, connection and accordance

In some cases, data provided by a partner was not directly relevant to the examined topic. In this case, information were extracted and put in a more simple way. The point of the obstacle is that sometimes, even though information is not fully relevant, it is still connected to the topic and may be, in some cases, interesting. Since it is impossible to present all information available and, on the other hand it is impossible to present information on the

same level of knowledge (because of data variability), it is sometimes complicated to find accordance between each participating partner. This resulted in information diversity in each partner's subchapter.

In case of information shortage in this report, it is possible to examine the tables (Table 10 and Table 11) and analyses (Analyses 4). These can be found in the Annex of tables and documents of this report.

2.2.1.3.3 The Regional level and partner differences and specifics

The last obstacles were connected with national differences. Each country has at least a slightly different legislation system, and there are differences in government structures etc. These differences are not only on country to country bases, but there are differences on the country to region level as well. This resulted in a different approach in each partner's subchapter, i.e. obstacles to any kind of comparison.

2.3 Local Plans, Regulations and Barriers

This chapter is based on the following data provided by participating partners:

- Lists of national, regional and municipal regulations and plans efficiency – Table 10
- Evaluation of existing barriers to energy sustainability and reduction of CO_2 emissions and the incentives – Table 11
- Pertinence of National and Regional Plans and Regulations – Analyses 4

The chapter is divided into 14 sections, a section for every participating partner. In every partner section, there are subchapters, based on information provided by each of partners, according to chapter 2.2. Each country chapter consists of main information, which contains information about local plans and regulations on the national and regional level (Table 10) and information about barrier and obstacles, which may be encountered when dealing with examined topics (Table 11). There is a lot of supplementary information as well. This information is mainly based on data provided by a partner (Analyses 4) and cover topics like information about participating authorities and organizations, existing incentives, risks and recommendations.

2.3.1 Italy

Since there was no data provided by this partner, Italy could not be included in this report.

2.3.2 Malta

Malta participated through three administrative unit regions, which are called Gozo Region, Northwest Region and South Region. Since these regions are quite similar in the context of Local Plans, Regulations and Barriers, they are treated together for the purpose of this report.

- The Gozo Region is composed of 14 localities, over an area of circa 60.70 km^2 and with 31,483 inhabitants.
- The Northwest Region is composed of 12 localities, over an area of circa 112.90 km^2 and with 84,270 inhabitants.

- The South Region is composed of 14 localities, over an area of circa 78.90 km^2 and with 89,974 inhabitants.

2.3.2.1Summary

Given that Malta is a small island state, there are no regional regulations or plans. In fact it is only for the actual joining of the Covenant of Mayors of some local council that there is some sort of regional / local voluntary planning. On the other hand we have national regulations as mentioned above and a National strategy for Policy and Abatement measures relating to the reduction of greenhouse gas emissions.

All of these regulations, such as (but not limited to) the Energy Performance of Buildings regulations, have the scope to increase energy efficiency (in this particular case in buildings) and to reduce CO_2 emissions. Obviously these regulations are in line with the national strategy just mentioned above.

2.3.2.2Characteristics

The same national strategy emphasised that a number of proposed actions require further study as it was not deemed possible or realistic that the published strategy document would be comprehensive in terms of the details and impacts of each policy or abatement measure considered.

Furthermore, it is stressed that the proposed strategy is not absolute and immutable. As new challenges emerge and unforeseen opportunities arise, the strategy should be reviewed and reconsidered. This strategy for policy and abatement measures relating to the reduction of greenhouse gas emissions was based on the following Figure 1.

Figure 1: Greenhouse gas emissions reduction building blocks (Malta)

In the same way, this Action Plan should be seen as a dynamic document. It attempts to include those measures presented in the National Strategy that can be implemented at local level. Given the limited jurisdiction and budgets of Local Councils, many such actions require the financial and administrative support of Central Government.

This should not be a major feat as such actions performed by the Local Council should be in line with the national strategy and should be deemed to be contributing to the achievement of the national targets.

2.3.2.2.1 Objectives – Regional and National Energy Policies

There are no specific regional energy policies for the Maltese Region but there is only one national policy / plan. The Ministry for Resources and Rural Affairs presents this National Strategy for Policy and Abatement Measures relating to the reduction of greenhouse gas emissions following a review of the work submitted to it by the Climate Change Committee it had appointed in June 2008 and a review of the feedback received following the national consultation process the Ministry held between January 2009 and March 2009.

2.3.2.2.2 Development and current state

Given that no interim / progress report has been issued regarding the implementation of the national strategy, it is not possible to give the exact details of development and current state. Nonetheless it is important to note that the Government has indicated several times that the country is on track to reach the targets by 2020.

2.3.2.3National Plans

2.3.2.3.1 National Strategy for Policy and Abatement Measures relating to the reduction of greenhouse gas emissions

As a part of the mentioned National Strategy, the country will undergo a substantial investment in energy supply by considering the possibility of substituting present sources of energy by cleaner solutions. Since electricity production is the major source of CO_2 emissions, it is envisaged that any improvement in this regard should contribute to an improvement in the National Emission Factor and as result reduce the locality's portion of CO_2 emissions. In addition, as a part of the Energy Demand Management measures, it is expected that national measures such as the installation of smart utility meters, promotion of energy efficient appliances and the implementation of the EU Directive on the ban on incandescent lights should also contribute to the overall reduction of the locality's energy requirements. The national measures aim to stimulate the penetration and use of renewable energy systems. It will attempt, as a part of this action plan, to help its citizens in tapping the financial and technical resources made available by central government for the implementation of the National Strategy.

It is pertinent to underline that in presenting this strategy, public feedback is incorporated to calibrate or to introduce new actions within the strategy to the extent that these were considered to add value to a realisable national strategy directed to reduce greenhouse gas emissions. To the extent possible, the strategy seeks to articulate the action that is to be adopted. Moreover, the strategy seeks to prioritise each action – on the basis of financial cost, ability to implement, clear economic and environment impact, immediate positive impact and whether an abatement measure stems from a specific EU and / or UNFCCC requirement.

This national plan is effective from September, 2009.

2.3.2.4National Regulations

2.3.2.4.1 Minimum Requirement on the Energy Performance of Buildings Regulations

The Minimum Requirement on the Energy Performance of Buildings referred to as the Technical Guidance Document F, will apply to all new buildings and existing buildings that undergo major renovation or alteration.

These regulations aim to improve the energy performance of buildings in line with the requirement of Directive 2002/91/EC of the European Parliament and of the Council of 16 December 2002 on the energy performance of buildings.

These national regulations are effective from 1st November, 2006.

2.3.2.4.2 Efficiency Requirements for new hot water boilers fired with liquid or gaseous fuels Regulations

These regulations determine the efficiency requirements applicable to new hot water boilers fired by liquid or gaseous fuels with a rated output of not less than 4 KW and no more than 400 kW.

These regulations implement the requirements of Council Directive 92/42/EEC of 21 May 1992 on efficiency requirements for new hot water boilers fired with liquid or gaseous fuels as amended by Directive 2004/8/EC and Directive 2005/32/EC.

These national regulations are effective from 11th August, 2007.

2.3.2.4.3 Energy Performance of Buildings Regulations

These regulations aim to improve the energy performance of buildings with regard to the following: (a) the application of minimum energy performance requirements for newly constructed buildings, (b) the application of minimum energy performance requirements for large existing buildings that are subject to major renovation, (c) the general framework for a national methodology for the calculation for the integrated energy performance of buildings, (d) the energy performance certification and (e) the regular inspection of boilers and of air-conditioning systems in buildings with regard to reducing energy consumption and limiting carbon dioxide emissions.

The scope of these regulations is to give effect to the provisions of Directive 2002/91/EC of the European Parliament and of the Council of 16 December 2002 on the energy performance of buildings.

These national regulations are effective from 1st January, 2009.

2.3.2.5Regional Plans

2.3.2.5.1 Covenant of Mayors

There are no regional plans in any of the participating Maltese regions, but some local councils have joined the Covenant of Mayors and thus have a commitment to reduce the CO_2 emissions.

The local councils are committing themselves to reduce CO_2 emissions in the areas under their direct jurisdiction. These include emissions due to energy consumption in municipal buildings, municipal public lighting and the municipal fleet. It is to be noted that municipal public lighting is not presently under the jurisdiction of the local council but it is expected so in the term of the Covenant of Mayors, that is, by the year 2020.

The European Union, in its effort to lead the global fight against climate change has committed itself to reduce overall emissions to at least 20% below 1990 levels by the year 2020. It has also acknowledged that local authorities have a key role to play in the achievement of the EU's energy and climate objectives. As a result, it has taken the initiative to establish the Covenant of Mayors, a process in which local authorities commit themselves voluntarily to reduce their CO_2 emissions beyond this 20% target.

The list of participating councils with date when the corresponding plan became effective follows:

Ghajnsielem Council - 10.6.2009

Gharb Council - 5.2.2010

Kercem Council - 15.6.2009

San Lawrenz Council - 23.6.2009

Xaghra Council - 10.6.2009

Xewkija Council - 26.6.2009

2.3.2.6Regional Regulations

There are no regional regulations in any of the participating Maltese regions.

2.3.2.7Barriers

The legislation in Malta is very recent and the enforcement is not very efficient. A typical example is the implementation of the energy performance certification of buildings which, although the Directive was transposed a couple of years ago, has still not been implemented. Other barriers include the lack of human and financial resources for the implementation of these regulations. Lack of involvement of stakeholders such as, but not limited to, the local councils and regional councils is evident.

In Malta, there are two main barrier types:

1) Energy sustainability barriers
2) CO_2 reduction barriers

These barriers are characterised by the following:

- Lack of human and financial resources to enforce the legislation; although there are grants / incentive schemes these are very limited.
- The energy efficient technology is still very expensive.
- Low public participation in initiatives aimed to reduce CO_2 emissions and increase energy sustainability.
- Energy policies are not quite clear for many people in Malta (such as the benefits); targeted sectoral energy sustainability and CO_2 reduction campaigns should be performed.

Although there is still a long way to go, and there is lack of human and financial resources at the national level, still the rate of progress / success is increasing and gaining momentum with time. Having the target to reduce CO_2 emissions by 20% by 2020 and to have 10% of the energy produced at national level coming from renewable sources is serving as a catalyst to improve energy sustainability at all levels. The local councils of all regions will be involved and consulted as these can help in achieving these goals. In fact more than

50% of the local councils have, on a voluntary basis, joined the Covenant of Mayors to reduce the CO_2 levels in the areas under their direct jurisdiction. Even when it comes to grants these should not be very restrictive as in some cases (particularly the European Regional Development funding) the local councils are restricted from participating in such schemes. The general public should be continuously informed regarding national plans / goals and even in this task the local councils should be involved as they can through specific initiatives, such as the organisation of energy days, raise greater awareness amongst the Maltese people.

2.3.2.8Respective authorities and other organisations

In each of the Maltese regions, the following authorities and organisations can be found:

- Regional Committee
- Local Councils Department
- Local Councils' Association
- Ministry for Resources and Rural Affairs (MRRA)
- Malta Resources Authority (MRA)
- Malta Environment and Planning Authority (MEPA)
- Planning and Priorities Coordination Department (PPCD)

2.3.2.9Risks

Given that there is only a national strategy and no regional / local strategies, there is the risk that the local councils and regional councils are not fully involved in the process. Therefore there is the risk of lack of coordination between the regions and central government which in turn might interfere with the implementation of the national strategy. In fact the local councils have joined the Covenant of Mayors voluntarily and thus in reducing the CO_2 emissions on a voluntary basis, this eventually has the same aim. Therefore the involvement of all the stakeholders at regional level and also at local level will definitely help in the implementation of the national strategy within the planned timeframe.

2.3.2.10 Existing incentives which can support municipal energy strategies and planning

- European Regional Development Funding (ERDF)
- Local Council Special Funds
- Grants from Malta Resources Authority
- Central Government Funds

2.3.2.11 Recommendations

The local councils in the Maltese regions should embark on an educational strategy that is based on the principles of accessibility of information, good practice, targeting specific consumer sectors, and that promotes the necessary culture change in how we look at and use energy.

The local councils in the Maltese regions will draw up and implement an annual Carbon Footprint Reduction Plan that will target such matters as the sustainable energy

action plan which is requested by the Covenant of Mayors office, in order to reduce the emissions of CO_2 by 20% by 2020. This can be achieved amongst other things ,by the installation of renewable energy sources in these localities.

The Directive relating to the Energy performance certification of buildings which has been transposed and is fully implemented in Malta shall be enforced.

The local councils will commission the installation of renewable energy systems such as but not limited to photovoltaic systems to provide part of the electrical energy used in the Local Council office buildings / gardens / recreational areas.

There should be more coordination between the different stakeholders including the central government and local councils in order to ensure that the economic, environmental and social aspects are addressed when drafting / implementing national policies / regulations.

The general public, private entities as well as local councils shall be encouraged to invest more in renewable energy sources by means of grants / schemes and thus the payback period for such investments will be reduced, hence encouraging more investment in the long run.

2.3.2.12 Conclusions

The National Strategy for Policy and Abatement Measures Relating to the Reduction of Greenhouse Gas Emissions issued by the Ministry for Resources and Rural Affairs contains various actions which when implemented will eventually reduce greenhouse gas emissions and improve daily lives. But it is very important that the local councils from the five different regions in Malta are involved in order to ensure a comprehensive plan and in order to ensure the successful implementation of these policies / plans.

2.3.3 Hungary

Hungary participated through one target NUTS 2 region – The Northern Great Plain Region.

2.3.3.1Summary

In Hungary there are plans and regulations according to energy policy and climate change. The disadvantage is that on a regional level there are not sufficient methods to account for precisely the RES potential etc. There are a lack of experts and also advisory networks. There are the most important plans and regulations collected in this analysis. All of them give special attention to the improvement of energy efficiency, sustainability, or CO_2 reduction.

2.3.3.2Characteristics

In Hungary, energy and climate change policy have been developed over many years, but the process is connected strongly with EU accession. There are more and more challenges both in the world economy and in the internal governmental sphere not to speak about climate disasters. The national or regional plans and regulations have to meet the requirements of different international levels. We are a member of the UN, so more and more regulations occur in the Framework Convention on Climate Change and its Kyoto protocol. (Resolution 49/2002 (VII. 19.) on Joining the Kyoto Protocol)

Hungary has four direct strategies and more indirect plans, which have reference to these fields. First it was created by the governmental resolution 1107/1999 the legal basis of energy efficiency activity, which projected an achievable energy savings amount of 75 PJ/year by 2010. The second milestone was after the accession, when the Parliament defined the energy policy for 2008-2020 with the resolution 40/2008 (IV.17). The main objectives were entitled there:

- Strengthening competitiveness
- Increasing the security of energy supply
- Promotion of sustainable development

More tasks and measures were set up, and this resolution became the basis of the further development process.

2.3.3.2.1 Localisation

These strategies and regulations refer to the whole country, and all 7 regions. Plans of a lower administration level have to meet the requirements of them.

2.3.3.2.2 Plans and Regulations summary

In the EU there are special regulations and aims concerned with energy policy, and Hungary has had lots of adaptation but compared to other countries it has fallen behind. One of the biggest problems is in the country itself, because an appropriate awareness of the importance of the energy theme is low on the regional and municipal level. Firstly, the Renewable Energy Strategy was created. Secondly, the Hungarian National Renewable Energy Action Plan was issued. The way of implementing policy modifies according to the current government situation. The National Climate Change Strategy is connected with the Kyoto Protocol and it efforts to take emissions to a 6 percent reduction. The Hungarian National Energy Efficiency Action Plan was set up according to the Directive 2006/32/EC. The new government is working on the Széchenyi Plan II, in which competitiveness and job creation are the main priorities. There are 6 important national regulations, which are strongly connected with this field. At the regional level there is one new strategy plan, but it has not yet been published. It contains mostly the generality of this theme and their statistics come second hand.

2.3.3.3National Plans

2.3.3.3.1 Renewable Energy Strategy for 2007-2020

This Hungarian strategy provides the conceptual framework for increasing renewable energy consumption, for contributing to renewable technologies and their spreading use, for improving the effectiveness of these technologies, and for their recognition and promotion. The strategy's principle is to increase the share of domestic renewable energy in accordance with environmental, economic and social sustainability. The main strategic target is to increase the use of renewable energy sources in Hungary from 59.5 PJ in 2007 to 186.3 PJ by 2020 (POLICY scenario). This strategic target is broken down into sector specific objectives as follows: the share of renewable energy resources used in electricity production should increase from 1887 GWh (in 2007) to 9470 GWh by 2020; the share of renewable energy resources used in heat generation should increase from 38.77 PJ (in 2007) to 87.05

PJ by 2020; the share of biofuel used in total fuel consumption should increase from 1.21 PJ to 17,5PJ.

The strategy determines the main directions of development, including instruments. The biofuels share granted to Hungary in 2010 is for 5.75% in order to achieve their commitment, and by 2020 the EU Member States should aim for a 10% share.

This national plan is effective from July, 2008.

2.3.3.3.2 Hungarian National Renewable Energy Action Plan (2009/28/EC)

As part of the EU climate change and energy policy (the so-called '20-20-20 targets') Hungary has set the target of 13% renewable energy of the total energy consumption of the country to be reached by 2020. This means 3795 k.toe. Therefore this national plan introduces the different types of the RES and their possibilities.

The Ministry (Ministry of Transport, Telecommunication and Energy), responsible for the development of the REAP, has charged the Hungarian Energy Office with the preparation of background studies and setting up three scenarios to reach the targets:

- 1st scenario: Lowest cost
- 2nd scenario: Highest employment
- 3rd scenario: Biggest CO2 reduction.

An inter-ministerial working group was established for the evaluation of the basic studies and the development of targets and measures. Meanwhile a new government was elected in May 2010 and the tasks and responsibilities of the former Ministry have been taken over by the newly established Ministry of National Development. The modified plan is not yet issued.

2.3.3.3.3 National Climate Change Strategy 2008-2025

There is the National Climate Change Strategy (NCCS), the preparation of the UN Framework Convention on Climate Change and its Kyoto protocol with an execution framework. This first strategy is disposed by the Act No. LX/2007, and concerns the period 2008-2025. Hungary's efforts are to reduce emissions under the Kyoto Protocol and so far in 2012 it has made a commitment to get to a 6 percent reduction. There are different fields included: greenhouse gas emission reduction, mitigation, adaptation, awareness raising, and 2-year National Climate Change Programmes on the implementation of measures described in NCCS. The NCCS takes into account the following principles: sustainability, precaution, thinking in a systemic way, differentiated responsibility, solidarity, prevention, decentralization, environmental justice and failures, integration.

The reduction of greenhouse gas emissions by reducing the total energy consumption should be implemented involving both governmental and society, so that the whole structure of production and consumption of materials is less energy-intensive. In the NCCS there were defined the variable tasks of the governmental institutions, authorities, population, NGO's, local communities, churches, business sphere and the media.

The Parliament accepted it on 17 March 2008 by unanimous vote.

2.3.3.3.4 Hungary's National Energy Efficiency Action Plan

Directive 2006/32/EC of the European Parliament and the Council (ESD) requires Member States to prepare a National Energy Efficiency Action Plan (NEEA). The main

national targets were the following: it will reduce the end energy use by 2016 to a total extent of 15,970 GWh/year (57.4 PJ/year). This objective corresponds to energy savings of 1,773 GWh (6.38 PJ) per annum. The primary objective of the action plan is to achieve the greatest level of savings in final energy use by efficient utilization of available resources. The indirect objective is to initiate a change in the way energy is viewed as a result of the examples of the relevant measures and thus develop awareness of the real value of energy. The objectives of the Hungarian Energy Efficiency Strategy are in accordance with the main objectives of the framework strategy entitled “Energy Policy of Hungary 2007-2020”, which are as follows:

1) strengthening competitiveness
2) increasing the security of energy supply
3) promoting sustainable development

The National Energy Efficiency Action Plan creates harmony with the domestic and EU political initiatives serving energy efficiency and contributes to the utilization of the most cost-effective energy savings potential.

The following major areas were identified and these can significantly influence the extent of energy demands:

- buildings in the residential sector
- buildings in the tertiary sector
- energy conversion
- traffic
- transportation
- construction (newly constructed buildings)
- typical energy-consuming products

From the aspect of energy, Hungary is strongly dependent on imports: more than three quarters of energy sources are imported. For all items of the triple system of objectives of Hungarian energy policy (see below), reduction of energy consumption is the best, quickest and most efficient solution. In the plan there are tables of measures planned in the different sectors. First, in the residential sector the total planned saving by 2016 is 24,67-29,91 PJ/year, in the tertiary sector 12,2-14,8 PJ/year, in the industrial sector it is 14,6-19,73 PJ/year, in transportation it is 4,6 PJ/year.

This concept of the national plan is effective from January, 2010.

2.3.3.3.5 Széchenyi Plan II

The new government’s Széchenyi Plan II (a discussion paper) deals with the importance of energy policy. According to the paper, energy policies in the future will have to be built around the following priorities:

1) supporting economic growth, enhancing employment
2) enhancing security of supply and diversification of sources
3) reducing dependency on energy imports (Russian gas)
4) producing and promoting the use of renewable energy sources
5) climate protection
6) nuclear energy
7) reorganizing the government’s institutional structure responsible for energy issues

The paper also emphasizes that flats, public buildings, municipalities hold the biggest possibilities for energy savings. The plan highlights the importance of energy efficient renovation of buildings:

1) energy efficient refurbishment of existing buildings
2) special emphasis on the reparation of insulation and the modernization of heating systems
3) energy certification of buildings
4) stricter construction standards

Unfortunately, Hungary has not developed a specific and wide range of energy efficiency standards. There are some, of course (i.e. the Energy Certificate of buildings), but energy efficiency issues have not been precisely worked out yet. Hopefully, the new government (and the results of projects like this) will raise better awareness in this matter.

The paper describes the three strategic frameworks for energy policies in Hungary:

1) security of supply
2) competitiveness
3) sustainability

This national plan was launched on 15th January, 2011.

2.3.3.4National Regulations

2.3.3.4.1 1107/1999 (XI. 8.)

This national regulation is the basis of energy efficiency-related tender application systems operating since 1991 with minor financial instruments. It influences government's decisions on energy savings and energy efficiency until 2010.

2.3.3.4.2 LX/2007

This national regulation considers climate change, climate strategy and intervention. It deals with emissions and land use. It is the part of the Act introducing the National Climate Change Strategy.

2.3.3.4.3 40/2008 (IV. 17.)

This Resolution includes tasks related to energy policy, security of supply, competitiveness and maintenance as well as measures supporting the implementation of community aims defined in the framework of the European Union in 11 articles.

This parliament's decision on Hungary's energy policy covers the period 2008-2020.

2.3.3.4.4 2148/2008 (X. 31.)

The Government, based on the related Resolution of the Parliament, prepared the strategy for increasing the use of renewable energy sources for 2008-2020. The Strategy contains requirements that Hungary's energy consumption from renewables meets a total 186.3 PJ in 2020.

2.3.3.4.5 1076/2010

This is the Energy Efficiency Action Plan, which implements more modifications such as energy requirements in continuing professional education development.

It is a modifying of the Act of 41/2008, concerning the National Energy Efficiency Action Plan.

2.3.3.4.6 Resolution 49/2002 (VII. 19.) on joining up to Kyoto Protocol, Govt. Decree 2045/2003 (III. 27.) on Setting Up an Interdepartmental Committee to Complete Tasks defined in the Kyoto Protocol

This regulation aims to meet international requirements in general. It contains definition of climate problems and the identification of those responsible.

2.3.3.5Regional Plans

2.3.3.5.1 Energy Strategy of the Northern Great Plain Region 2010

This regional plan deals with the situation of the Region concerning energy issues and highlights the priorities of those fields where measures should be taken in accordance with the national strategy. The policies are the same on the regional and national level. Strategic goals of the region are not action plans. They are in accordance with national regulations and are there to help meet the EU requirements on a national level. The main goals are:

1) To reduce the overall energy consumption of institutions by 10% by 2020 (1% off every year; base year is 2009)
2) To increase the consumption of renewable energy sources by 2020. In micro settlements, the ratio of renewable energy sources has to take up at least 13% of the overall energy consumption.

The regional objectives are the same as in the national strategy:

1) Reducing energy dependency
2) Creating energy safety
3) Realizing energy efficiency of buildings
4) Increasing the amount of renewable energy sources and with this helping to reduce the CO_2 level
5) Assisting in the economic improvement of micro regions
6) Localisation of energy sources in certain settlements

The biggest savings can be realized by reducing the energy consumption of institutions. Old houses in Hungary use approximately 200 kWh/m2/year – this has to be reduced to 100 kWh/m2/year by 2020. This can be realized by: changing consumer attitudes, consumer rationalisation, analyzing the insulation Energy certificate, using energy saving light bulbs etc. The realization of large-scale investments (replacement of shutters, insulation, modernisation of heating systems etc), should be granted through tenders.

This regional plan is effective from 2010.

2.3.3.6Regional Regulations

There are no specific regional regulations in the Northern Great Plain region and all regulations follow national plans and regulations.

2.3.3.7Barriers

In 2008, total emissions of greenhouse gases in Hungary were 73.1 million tons carbon dioxide equivalents (excluding the LULUCF sector).This is by far the lowest value in the whole time series (1985-2008). By ratifying the Kyoto Protocol, Hungary committed to reducing its GHG emissions by 6%. The energy sector was responsible for 75.9% of total GHG emissions in 2008. Carbon dioxide from fossil fuels was the largest item among greenhouse gas emissions contributing 94.3% to sector emissions. Concerning the Municipality there are available emission data from the Trans-Tisza Water Management Board Database, which were part of the Report 1. In this part only general barriers are being described.

2.3.3.7.1 Energy sustainability

Barriers in the energy sustainability category can be identified such as:

1) No harmony in energy plant production and demand

The most important characteristic of the Hungarian gas supply system is the one-sided dependence on gas imports from Russia, which is higher than the European average. Due to the privatisation of the energy sector it is a foreign interest, and the services are in monopoly status. In Hajdúszoboszló (the selected municipality) these are the TIGÁZ, E.ON. The supply system is mostly wasteful and old here. An overall energy efficiency conception is needed.

2) Environment consciousness is low within society

There is a lack of environmental awareness in the public and private sphere, due to the heritage of the communist regime, the comfortable life style, and the different generations growing up without environmental knowledge. One of the serious problems is the lack of a holistic approach or the developing of long-term management strategies. The role of leaders and decision makers is predominant in Hungary because of the "top-down" social habitat. The Hungarian population is committed to environment consciousness less than west european citizens. The younger generation should be taught about energy efficiency in several school subjects, e.g. in physics, environmental protection and other studies.

3) Lack of information and mistrust relating to the use of RES, thus it is not yet a reliable advisory system

It is a well-known fact that the RES potential in our country is high, according to a survey from the Hungarian Academy of Science. The available renewable energy potential in the next 50 years is more than twice the current energy consumption. In this Municipality there is mostly biomass, solar, and waste potential according to its environmental condition. The technology and the financial terms are missing. An advisory system is in its infancy, and while it is true that our region has an Energy Agency it is not enough. In the Municipality there is no NGO concerned with energy.

4) Most local self-governments face a lack of financial resources

The local council's financial problems are not only due to the global financial crisis but to the internal political changes as well. Year by year, the state standard norm is decreasing so performing compulsory duties is hard. The EU subsidies are favourable, but there is the lack of own contribution. The accounting system of the RES investment is not worked out. Among inhabitants there is little mind for investment to reduce energy consumption.

2.3.3.7.2 CO_2 reduction

Barriers to CO_2 reduction can be identified such as:

1) Fossil energy sources are still predominant

Hungary is strongly dependent on imports: more than three quarters of energy sources are imported. In the selected Municipality it is the same. The National Climate Change Strategy sets up an ambitious CO_2 emission reduction plan, which, in the first step, could be realized with diversification. More and more people in communities switch to wood or waste, but it correlates with financial problems and poverty. According to a survey, the public sector is responsible for more than 1/3 of the CO_2 emissions. The barrier is that the whole public institutional network was built within the traditional old system of the previous regime.

2) The lack of experts

The urgent problem is the lack of experts. The Hungarian Chamber of Engineers began specialist training courses organized to develop this human resource aspect. The market for energy technology widens, but it is difficult to find professionals to implement policies in rural areas. In the vocational schools lots of skilled workers are educated, but they don't know recent materials and methods. In the target municipality, there are more SME's in the field of construction, but they are not educated in the installation of new equipment. In addition, the inhabitants are not aware of the importance of CO_2 reduction. The appearance of energy efficiency in education may reflect only a recent societal recognition for the role of energy efficiency.

3) The Road network is undeveloped

The main road divides the city, so the transit traffic is heavy. The rate of CO_2 emissions is medium to high due to the railways, cars etc. The railways are not used effectively, which opens the possibility of making transport work to a more environmentally friendly and cost effective purpose. Cycling is popular, but there are not enough cycle paths.

4) Old buildings, anachronistic heating systems

An aging population is typical in rural regions, where the dwelling houses have old heating or electricity systems. The building structures consist of simple materials without any kind of abilities to retain heat etc. The insulation, the change of shutters, heating or hot water supply modernisation etc. are important tasks in the future, but there is here a financial barrier too. The new detached houses are more modern, and their energy efficiency is higher.

5) Financial problems

Financial problems are dominant whether for the municipality or for citizens. The local budget cannot afford to start a new investment alone. The price of energy efficiency intervention or using non-renewable energy are high and increases constantly. The business sector is not able to manage these long-period investments either. Due to the global financial crisis, the situation deteriorated. It has to be mentioned that banks are not able to support new green investments and this has retarded development ideas.

2.3.3.8Respective authorities and other organisations

The following authorities and organisations can be found in Hungary (or in Great Northern Plain Region respectively):

- Ministry of National Development
- Ministry of National Affairs
- Ministry of National Resources
- Ministry of Rural Development
- Hungarian Development Bank Assoc.
- Energy Centre Office Ltd.
- Others (Research Institutions, Meteorological Office etc.)

2.3.3.9Risks

There are internal and external risks:

- The global financial crisis will be drawn out
- The internal policy environment will be poor
- financial problems will occur for green investments
- the route of self-contribution will be barred
- unexpected natural catastrophe or climate changes etc.

2.3.3.10 Existing incentives which can support municipal energy strategies and planning

2.3.3.10.1 European Union level

- Covenant of Mayors
- Energy for Mayors
- come2COM
- city_SEC

2.3.3.10.2 National level

- Climate-friendly Blocks of Flat: sub-program of the Green Investment System
- Climate-friendly Home Energy efficiency: sub-program of the Green Investment System
- The new Hungary Development Plan's programme: Environment and Energy Operative Programme
- Környezet és Energia Operatív Program (KEOP)

2.3.3.10.3 Best practices from other municipalities in Hungary

- Hajdúszoboszló in the target region – new thermal energy project by the SPA Centre,
- Mórahalom- thermal distinctive heat system
- Mezőtúr - wind plants project (3,6MW)

2.3.3.11 Recommendations

- price/value rate re-think to make a worthy investing process
- promotion campaign – dissemination of good practices, knowledge, experience and information for SME's, population, students
- increase information supply relating to RES and energy efficiency
- adult education, staff training

- more favourable financing possibilities for long-term investment
- local tax benefits to encourage the local communities
- introduce compulsory energy saving rules in the tertiary sphere

2.3.3.12 Conclusions

In the last few years, new steps were taken for future development. There has been set the target of 13% renewable energy of the total energy consumption of the country to be reached by 2020 (Renewable Energy Action Plan), or to reduce final energy use by 2016 to a total extent of 15970 GWh/year (National Energy Efficiency Action Plan), as well as to reduce by 6 percent greenhouse gas emissions under the Kyoto Protocol by 2012 (National Climate Strategy).

There are many targets and objectives in different plans and strategies, but successful implementation depends on many external and internal factors. Internal terms are for instance government, regulation of the energy market and prices, investment and financial support, human resources (experts, training, dissemination); the external terms are international changes, given financial and global realities etc.

2.3.4 Czech Republic

The Czech Republic participated through two target NUTS 2 level regions – Prague Region and Middle Bohemia Region. Although these two regions are different in general, for the purpose of this report, these two regions were basically merged and only regional specifics were treated separately.

2.3.4.1Summary

There is a system of National and Regional Plans and Regulations pertinent to the target regions and municipalities. Voluntary programmes and projects for sustainable development in actual municipalities, cities, and regions in the Czech Republic are being developed as well, e.g. Local Agenda 21 and Local Action 21 (LA 21).

There are specific barriers regarding the development of RES and CO_2 reduction:

- The strategic target of Middle Bohemia region to secure energy demand and needs while respecting the existing and potential energy sources
- The cost of RES technology
- The necessity to solve the CO_2 emission problem on a larger scale as it cannot be solved locally
- The need for global coherence between the politics of energy and other fields
- The permanent task to assure a better coordination and alignment of interests of individual stakeholders and civil society.

The main problem with an increase of energy generation based on RES is the integration of new RES capacities into distribution networks.

2.3.4.2Characteristics

The main problems with an increase of energy generation based on RES are

- Problems with integration of new RES capacities into distribution networks
- Danger of collapse of the energy distribution network because of overflow of energy

- Necessary additional costs to mitigate the risks of emergency situations

A special Czech problem with photovoltaic energy is the mechanism of purchase price (feed-in tariff) combined with the green bonus system. It guarantees a 15 years purchase price for photovoltaic energy in the Czech Republic, which is very likely the highest in Europe. The result is speculative investment in photovoltaic energy, an impact on landscape and environment, a danger of distribution network collapse and a sharp increase of electricity prices for consumers. The Czech government reacted by way of supplementary (retrospective) taxation of profits which could lead to international arbitration to protect foreign investments.

2.3.4.2.1 Prague specification

The Strategic Plan of the city of Prague and The Programme of Implementation obey the principles of sustainable city development and contain objectives and proposals also in the field of energy supply and environmental protection. Consumption of fuel and energy for heating and hot water production in Prague has been showing a decreasing trend, while electricity consumption has been growing. In addition to the programme Clean Energy Prague, the State Programme "Green Light to Savings" contributes in a positive manner to the energy consumption reduction over the long-term. There are savings of fuel and energy also due to effects of the price development trend.

2.3.4.3National Plans

2.3.4.3.1 State Energy Concept

State Energy Concept (SEC) is a strategic document with an outlook for 20 years formulating state targets in energy economy in harmony with needs of economic and social development, including environmental protection, and used also for working out territorial energy concepts.

The State Energy Concept is prepared and its fulfilment is assessed by the Ministry of Industry and Trade (MPO) at least once in two years, and in case of need MPO prepares proposals to amend the State Energy Concept and submits them for approval to the government. The main purpose of SEC is the setting out of priorities, goals and the complex of instruments determined for taking into account energy, ecological, economic and social aspects, among others:

- Definition of priorities and goals in the Czech energy sector
- Specification of actual instruments for realization of Czech energy policy
- Outlook for the energy sector up to 2030.

SEC is periodically updated and amended. Six scenarios are given to 2030. Targets set by SEC are :

- Increase in energy consumption by 17% up to 2030.
- Energy demand within GDP to be reduced by 63%.
- Increase in energy consumption from RES by 400%, from actual 2.7% to 10.3-10.6%.

Anticipated share of electricity consumption produced from RES is expected at the level of 10.3 – 10.6% out of the total volume of electricity consumption. It means nearly quadruple growth from the present 2.7% share.

This concept is effective since 10 March, 2004.

2.3.4.3.2 National Programme for Energy and the Economic Treatment and Utilisation of RES and Secondary sources 2006-2009

This programme is a medium term programme to fulfil goals of the State Energy Concept and the State Environmental Policy with the following priorities:

- Maximisation of energy and electro- energy effectiveness and utilisation of economies
- Higher utilisation of RES and Secondary Sources
- Higher utilisation of alternative combustibles in transport

This programme reduces the impact on the environment, contributes to observation of national emission limits for SO_2 and CO_2 and stabilises reduction of NO_X emissions.

It ran effective between years 2006 and 2009.

2.3.4.3.3 National Programme of Emissions Reduction

This programme has the following aims:

- Reduction of risks to health
- Reduction of materials and agents detrimental to ecosystems and vegetation
- Creation of conditions for regeneration of affected parts of the environment

This includes:

- Basic concept of atmospheric protection
- Setting the framework for, and completing of, city and municipality programmes

The main problem is atmospheric pollution with PM10, PM2,5 and NO_X. The programme specifies participation of the main economic sectors in national emissions (SO_2, CO_2, NO_X).

2.3.4.3.4 Programme of Support for RES

This programme stimulates and supports energy generation projects based on RES. Energy economies are split into sectors and there are more than 75 measures. This programme is effective since 2006.

2.3.4.3.5 Action Plan for Biomass

The main aim of this plan is to remove barriers from the biomass market, to increase biomass utilisation, to optimise biomass energy utilisation and to support start-up of biomass energy investments. The target for RES energy is to reach a consumption of 8% out of gross domestic energy consumption. The plan gives an overview of support and grants titles.

It is effective from 2009 to 2011.

2.3.4.4 National Regulations

2.3.4.4.1 The Energy Regulatory Office's price decision No. 5/2009 (ERO)

The main target of this regulation is to set and regulate prices to producers - RES, combined electricity and heat generation and secondary energy sources. It assures minimum (higher) prices to the producer and different rates in accordance with the installed capacity and date of installation. Photovoltaic electricity has the higher price.

These decisions are effective periodically, depending on the ERO.

2.3.4.4.2 Act No. 406/2000 Code On Energy Management

This Act transposes relevant EU regulations and stipulates:

- Some provisions and measures to increase efficiency of energy use and obligations and duties of physical persons and corporate bodies in energy treatment
- Rules for working out the State Energy Concept, Territorial Energy Concepts and the State

The Act sets the rights and obligations of physical and legal persons concerning energy management, mainly electrical and heat energy, but also gas and other fuels. It is periodically amended to reflect the EU demands in RES. The Act sets out:

- State and Territorial Energy Concepts
- Starting a State Programme to support Energy Economies and RES utilisation
- Other energy aspects

This act is effective since 2000.

2.3.4.4.3 Act No.180/2005 Code on support of electricity generation based on RES

The purpose of the Act is to support the use of renewable sources of energy, i.e. wind energy, solar energy, geothermal energy, water energy, soil energy, air energy, biomass energy, landfill gas energy, sewage gas energy and biogas energy. The purpose of the Act is also a constant increasing of the share of renewable sources in the consumption of primary energy sources, economical use of natural resources and the meeting of an indicative target for the share of electricity produced from renewable sources in the gross consumption of electricity in the Czech Republic at 8 % by 2010.

The Act regulates the rights and obligations of participants in the renewable electricity market, conditions of support, purchase and registration of renewable electricity, setting the prices for renewable electricity separately for individual types of renewable sources and green bonuses, the manner of regular assessment of the share of electricity produced from renewable sources in the gross consumption of electricity for the previous calendar year and the calculation of anticipated impacts of support on the overall price of electricity for end customers in the next calendar year.

The second and third part of the Act contains a list of Acts which are subsequently being amended, namely Act No. 406/2000 Coll., on energy management, as amended by Act No. 359/2003 Coll. and Act No. 694/2004 Coll., and Act No. 86/2002 Coll. on protection of the air and on amendment to some other Acts, as amended by Act No. 521/2002 Coll., Act No. 92/2004 Coll., Act No. 186/2004 Coll. and Act No. 695/2004 Coll.

This act is effective since 2005.

2.3.4.4.4 Act No. 586/1992 Code on Income Tax

The main aim of this act is to give tax incentives for energy producers based on RES. This act is amended periodically, setting tax rates and "green" bonuses. This reform sets new excise tax and tax liberation for electricity, natural gas and solid fuels.

2.3.4.4.5 Ecological tax reform

The main target is to give tax incentives for energy producers based on RES. It is effective since 2007.

2.3.4.5Regional Plans (Middle Bohemia)

2.3.4.5.1 Regional Energy Concept (REC)

The main targets are:

- Energy balance
- Existing energy demand and energy needs in the region
- How to improve energy management concerning large buildings

The concept sets new ways and possibilities of energy generation and distribution (photovoltaic, biomass, biogas). These include analysis of potential energy sources and energy utilisation in municipalities and districts together with an action plan of specific projects.

REC represents the strategic energy document of the region. It takes into consideration national energy policy targets and principles; it reflects the present and future energy demands and needs of the region, sets out ways how to meet them with respect to sustainability, environment protection and the increase of RES utilisation.

This concept is effective since 2004.

2.3.4.5.2 Action plan of project specification in the field of energy management

This plan realizes specific projects according to individual programmes defined in the Regional Energy Concept. These programmes are: Education and Awareness, Heat protection of buildings, Passive low-energy houses, Heat by sun (photovoltaic), Heat by biomass, Biogas stations, Cogeneration and Recuperation.

To fulfill programmes and realize projects requires a lot of measures and actions to be carried out - specified in the REC. A set of measures was worked out, to be taken in the period of 2004 - 2010. The Action plan forms a transition bridge between conception, programmes and specific projects.

2.3.4.6Regional Plans (Prague)

2.3.4.6.1 Territorial Energy Concept (TEC) of the City of Prague

This concept aims at energy balance, existing energy demand and energy needs in the Prague region. It also concerns conditions for development of energy and fuel supplies in Prague and ways of increasing efficiency of utilisation of classical energy sources and RES. The main priorities of TEC are: Strategy for city development and energy supply, Greenhouse Gas emissions, Energy savings, Energy use of waste, Sustainable transport, ICT for sustainable development and Public information and education.

TEC is effective since 2005.

2.3.4.6.2 Action Plan for implementation of TEC of Prague for the period 2007-2010

Benefits of this action plan are: Energy economies, Utilisation of RES and secondary energy sources, Cost savings for energy and fuels and Reduction of emissions of pollutants.

2.3.4.7Regional Regulations (Middle Bohemia)

2.3.4.7.1 Grants and subsidies programmes

The main aim is to support the realization of the main targets of the Regional Energy Concept and Regional Action Plans. They are the basic form of providing financial contributions from the regional budget to institutions, municipalities and individuals. They are being issued periodically, in harmony with Action plans and other energy documents.

2.3.4.8Regional Regulations (Prague)

2.3.4.8.1 Programme of Subsidies of the City of Prague: Clean Energy Prague

The main aim is to motivate owners or users of apartments to convert their original heating sources to those firing more environmentally friendly fuel (especially from solid fuel to natural gas) and to higher use of RES.

This regulation is effective since 2009 and it is based on the programme called "Programme of Subsidies of the City of Prague for the conversion of heating systems and use of RES on the territory of Prague" from 1994.

2.3.4.8.2 Regulation of the City of Prague No.4/2005 "Regional Regulation Rule on Sources Regulation in the capital"

The main aim is to give signals of warning and signals of regulation of sources of atmospheric pollution. Levels of SO_2 and NO_X for signals and their cancellation are given by this formulation. This regulation is effective since 2005.

2.3.4.9Barriers

There are specific barriers regarding the development of RES and CO_2 reduction:

- The energy balance of the examined regions and how to satisfy energy needs in the long term
- The cost for RES technology
- The necessity to solve the CO2 emission problem on a larger scale
- The need for global coherence between the politics of energy and other fields
- The persistent task to assure a better coordination and alignment of interests of individual stakeholders and civil society

2.3.4.9.1 Energy Sustainability

Barriers in the energy sustainability category can be identified as:

- Absence of measures for development of intelligent networks
- No identified need for concept support to effective heat generation from RES
- Electro-mobility not mentioned
- Adverse information culture
- Lots of wind plants and biogas station projects stopped because of citizens disapproval

Another category is the political and legislation climate in the Czech Republic. Political and mass media discussion concerning RES is adverse at present. The threat of electricity price increases due to improper price subsidy of photovoltaic complicates further

RES development, brings about the halting or suspension of connection of RES to grids. Preparation of RES regulation without consultation with experts, business circles and citizens is problematic.

2.3.4.9.2 CO_2 Reduction

Barriers in the CO_2 reduction category can be identified as:

- Influence of other economic sectors and spheres
- Effective, proportional and sustainable support to RES development
- Potential of energy savings
- Investment costs into RES
- State policy
- Education and information campaigns weak

2.3.4.9.3 RES Implementation

There are some issues connected with the RES implementation process, such as:

- Costs of RES research and production
- Public and administrative support
- Economical sustainability
- Regulation and coexistence with other installations in the territory
- Specific groups of people- gaining RES acceptance among them
- Information and support

2.3.4.10 Respective authorities and other organisations

2.3.4.10.1 The Ministry of the Environment (MoE)

The Ministry of the Environment (MoE) is the central state administrative authority and supreme inspection authority in environmental affairs. The MoE is the central state administrative authority in many different fields concerning the environment.

To guarantee and undertake inspection activity of the Government of the Czech Republic, the Ministry of the Environment co-ordinates the activities of all Ministries and other central state administrative authorities of the Czech Republic in environmental matters.

2.3.4.10.2 The Ministry of Industry and Trade

The Ministry of Industry and Trade is the central body of the government administration involved in many different fields concerning industry and trade, which have an impact on the environment as well as energy consumption and RES.

2.3.4.10.3 The Ministry for Regional Development

This is a central government authority in matters of regional development (e.g. policies, planning, rules).

The Ministry for Regional Development also administers financial means intended for ensuring the housing policy and the regional policy of the State, coordinates activities of the Ministries and other central government authorities in arranging for the housing policy and regional policy of the State and plays the role of the National Coordination Authority (NCO),

which lays down a single framework for management and implementation of the assistance granted from structural funds and the Cohesion Fund in the Czech Republic.

2.3.4.10.4 Regional Government of the Middle (Central) Bohemia Region / Prague City Hall

Administration of the region is carried out by the Assembly. The executive body of the region is the Council, which reports to the Assembly.

2.3.4.11 Risks

Risks are connected with Barriers, which are described in chapter 2.3.4.9.

2.3.4.12 Existing incentives which can support municipal energy strategies and planning

2.3.4.12.1 National incentives

Photovoltaic electricity

The objective is to encourage energy production made from the photovoltaic, based on a purchase price more favorable for photovoltaic energy. The Energy Regulatory Office's price decision No. 5/2009 (ERO) and its amendments are crucial for further photovoltaic development. In developing photovoltaic electricity, it is necessary to take into account the capacity of distributing grids. It is important to give comparable business conditions (level of profit) for private investors. It concerns all the Czech territory. The future systematic support of the government to photovoltaic is not clear at present.

The development of photovoltaic projects must respect mainly the following conditions: to observe the optimal proportion in the structure of other RES; to respect the limits of distribution grids; to limit the environmental impacts; to raise awareness and develop education and information about the substance, significance, installation of actual projects; to monitor the installation and to analyse the RES contribution and effect.

Czech national programme "Go-ahead to green savings"

The main target of the programme is to take measures leading to energy savings and to support RES use in family houses and flats. There are 5 supported spheres involved:

1) Energy savings for heating
2) Building in passive energy standard
3) Use of RES for heating and hot water
4) Grant bonus (for combination of measures)
5) Support for preparation and realization of RES measures.

Financial sources of the programme come from state sale of AAU units (quotas for emission of green house gases, sales of AAU units). From 1990, the Czech Republic succeeded in reducing emission of green house gases by more than 27.6%.

2.3.4.12.2 Middle Bohemia

Action Plan of the Middle Bohemia Region.

Programmes involved in the Action Plan:

1) Education and Information

2) Reduction of specific energy consumption
3) Decentralised energy generation
4) Use of RES
5) Increase of security of energy supplies

Financial sources to reach targets of programmes are:

- Environmental Fund of Middle Bohemia District Office (in 2004, only 1% of the region budget was destined for RES)
- State Environmental Fund
- Czech Energy Agency grants
- EU grants

Amendment of the Action Plan of the Middle Bohemia Region

This is based on the Regional Energy Concept. It gives the priorities in the field of RES. The main programmes of the Action Plan include the following priorities:

- Education and Information
- Heat prevention of buildings (1000 projects for private buildings)
- Passive, low energy houses (building of 26 passive and 50 low energy houses)
- Sun generated heat (8000 m2 of solar collector i.e.8 MW installed capacity)
- Biomass heat (1000 household boilers i.e. 10 MW installed capacity)
- 10 biogas stations
- Cogeneration (100 cogeneration units to install i.e. 20 MW)
- Recuperation (10 projects at least)

Supporting development and use of RES

Grant activity of CEZ, the leading Czech energy company, to support new RES projects. Consumers of "green energy" pay a purchase price a little bit higher, with simultaneous subsidy of CEZ. A fund to support RES is created in such a way.

Grantor is the Czech leading energy company "CEZ" (Czech Energy Works). The Council of Green Energy of CEZ announces each year new grants for development and use of RES. The plan of CEZ stands for the generation of energy from RES in 2020 to reach 5.1 TWh which is 4x higher compared to 2007 with 1.3 TWh.

In 2009, the special fund of CEZ amassed 5.6 mil. CZK (234 000 EUR) based on 27.8 GWh green power take-up. This sum was used to support in the form of grants new RES projects in 2010. The winning projects with grants were in the field of education, research and building.

2.3.4.12.3 Prague

Programme "Clean Energy Prague".

The target of the programme and grants based on it is to motivate the private owners and tenants of houses to convert from original heating (mainly solid fuels) systems to ecological heating systems and give support to RES use.

Programme "Clean Energy Prague" for the period of 1994-2009 was realized as the continuation of the former Programme of grants for the conversion of the heating systems and use of RES on the territory of Prague.

In the period 1994-2009, grants to convert heating systems of flats were allocated: 14 728 projects (39 674 flats) were realized with the total amount of grants of 431.5 mil. CZK (17.8 mil. EUR). Breakdown of grants according to new heating system in 2009 was: photovoltaic 44%; heating gas 25%; electricity 25%; solar collectors 3%; heat pumps 2%; biomass 1%. Total amount of grants in 2009 11.72 mil. CZK (488 500 EUR).

Grants to support projects for environmental improvement in Prague

Main targets of the grants are:

- involvement of public into active environment care and public green care;
- to develop pre-school ecological education;
- to extend city public green spaces;
- to support conversion to ecological agriculture in Prague rural districts.

Grants are not directly connected with RES or CO2 reduction. In the period of 1996-2010, all grants amounted to 116 mil. CZK (5 mil. EUR) with 1120 projects supported.

2.3.4.13 Recommendations

- To start and implement more effective programmes and measures aiming to improve the urban transport infrastructure and to reduce the pollution in urban areas.
- National Renewable Energy Action Plan of the Czech Republic (NREAP), approved 25 August 2010, is not sufficiently fulfilling the requirements of Directive 2009/28/EC. A combination of the NREAP and the draft of the large amendment of the Act. No. 180/2005 Coll. on promotion of renewable energy sources can paradoxically lead to a downturn of the renewable energy sector. The main target, to achieve a 13% proportion of RES out of the final energy consumption by 2020, should be reassessed and amended.
- Periodical registration and assessment of atmospheric pollution and RES use (register of historic results must be improved, effective measures are to be taken, periodical assessment of efficiency of measures and programmes must be assured).
- Financial support for the companies which invest in green technologies.
- Strengthening of global coherence between the politics of energy and other sectors, as well as to coordinate and align the interests of individual stakeholders and civil society.

2.3.4.14 Conclusions

Programmes are focused on energy sustainability; they are not programmes and grants targeted directly on the CO_2 issue. Development of RES is more supported than energy savings. The municipalities have limited financial sources to be allocated for RES or CO_2 reduction; they are dependent mainly on the grants and programmes of the state institutions and private investor initiatives. The municipalities in Middle Bohemia Region do not always know the present situation in energy sources and their use; they are financially dependent on outside financial support for RES.

Additional support will be needed from national and European authorities in order to properly implement and achieve the goals of the strategic action plans for energy in the next years.

2.3.5 Greece

Since there were no data provided by this partner, Greece could not be included in this report.

2.3.6 Slovakia

Since there were not enough data provided by this partner, Slovakia could not be included in this report.

2.3.7 Slovenia

Slovenia participated through one target administrative region – Pomurje region.

2.3.7.1Summary

Slovenia has a relatively large number of legislative and regulatory provisions dealing with renewable energy and energy efficiency. In addition to an Energy Act, Slovenia has a law on protection of the environment and a Building Act that is mostly related to the mentioned topic. There is also a whole series of national plans and regulations which are associated with it. We can therefore say that Slovenia has a wide enough legal support so that measures for energy efficiency and renewable energy sources can be implemented.

2.3.7.2Characteristics

The Energy Act in Slovenia sets out the principles of energy policy, rules of operation of the energy market, procedures and forms of public utility services in the energy sector, the principles of security and energy efficiency, energy conditions of operational plants, the conditions for the performance of energy activities, regulated energy licensing and permits, and bodies carrying out administrative functions under the provisions of the Energy Act. It was adopted in 1999.

The Environmental Protection Act was adopted in 2004. This law regulates the protection of the environment from adverse impacts as a prerequisite for sustainable development. The purpose is to promote environmental protection and the social development of such guidance, which allows long-term conditions for human health, wellbeing and quality of life and biodiversity conservation. As an addition to the Construction Act we have Regulations on energy efficiency in buildings (Pures) (2008 AND 2010) / Policy on efficient use of energy and buildings, which sets out the essential requirements which must be met by energy-efficient buildings and lays down principles to be followed in their design. Other legal acts are subordinate to this law and set out in more detail the conditions for the construction, operation and maintenance of equipment and buildings, which have the function of energy efficiency and using renewable energy sources.

2.3.7.2.1 Localisation

The local environment (region) has no specific local legal acts, since regional governments are not yet operational. Although there is a regulating law at the national level, assistance is being developed in Pomurje region, where development is understood primarily in economic terms. Nevertheless, a commitment has been found for an accelerated use of geothermal energy as a renewable resource, since the Pomurje area has great potential for this. But there are regulations at the level of municipalities. These acts define their energy

plans. Based on the current state of affairs they set out measures for increasing the use of renewable energy sources and reducing energy consumption. In the area of Pomurje region such plans have still a relatively small part for the municipalities.

2.3.7.2.2 Objectives – local energy policy

Local energy policy is now limited to the municipalities. At the regional level, such acts are not present. Municipal programmes are related to the national legislation and are aimed primarily at promoting co-financing under the state plans that are related to renewable energy and energy efficiency. Here we can mention in particular the following plans. AP GHG-1 is an operational programme to reduce greenhouse gas emissions by 2012. AP-GHG-1 is intended to exercise its obligations under the Kyoto Protocol, sets out the key instruments, the obligation of individual sectors in the implementation of these instruments, and adaptation of instruments, taking into account the criterion of minimising costs to meet Kyoto commitments. OP ETID is the Operational Programme of Environmental and Transport Infrastructure 2007-2013. OP ETID has several development priorities - one of them is a sustainable use of energy, which is assembled from the four priority directions: improving energy and sustainable construction of buildings, efficient use of electricity, innovative measures and demonstration projects, information and energy advice.

2.3.7.2.3 Development and current state

At the regional level Pomurje has created a programme that is linked to improving economic development in the region. In this programme are identified plans for sustainable action at all levels, including facilitating the use of renewable energy sources and reducing energy consumption. The plans include a focus on the following considerations and plans: projects for energy efficiency in private and public buildings, for the replacement of outdated boilers, for the production or manufacturing of natural materials for energy purposes and for investment in pilot and demonstration cases or studies, and for promotion and awareness, projects related to renewable energy sources concerning the construction of systems for the exploitation of solar energy, investment in infrastructure and systems for the use of biomass, production of raw materials and biodiesel production, investment in infrastructure and systems for geothermal energy, the exploitation of other renewable energy sources, and again for promotion and awareness.

The programme is prepared for the period between 2007 and 2013. Most projects are linked to national demands and are obtaining funds from government sources. A limited number are connected to international demands. The quality of the prepared projects then determine whether the planned assets would be acquired and implemented in a planned project or not.

2.3.7.2.4 Plans and regulations summary

Slovenia has a relatively large number of rules which determine the conduct of the State, individuals and businesses in relation to energy efficiency, renewable energy sources and appropriate involvement of both mechanisms in their daily management and operation. Another story, of course, is their actual implementation. Implementation is primarily related to the awareness that in our country is mainly carried out by civil society and relevant groups concerned with environmental protection. Increased awareness among people, in order to maintain an adequate quality of life necessary to have clean air and nature has been

noteworthy more recently. Greenhouse gases are an issue that is often on the agenda of the various discussions and debates. Implementation of planned reductions in emissions is carried out relatively slowly, and sometimes there are political decisions in a direction opposite to this trend. A lot of controversy arose with a decision to build a new thermal power plant block in Šoštanj recently.

2.3.7.3National Plans

2.3.7.3.1 (AP-EE) National Action Plan for Energy Efficiency for the period 2008-2016

The main targets of this plan are financing incentives for households, the tertiary sector, industry, transport and the widely-used public sector.

The AP-EE will reach the final energy savings target of at least 4261 GWh (9.0% of baseline consumption) in the period 2008-2016; during the period 2008-2010 will be achieved savings of 1184 GWh (2.5% of baseline consumption). There were 97% energy savings achieved by measures to make efficient use of fossil fuels, electricity and district heating, and 3% savings with measures to make effective use of renewable energy and savings from the introduction of systems for cogeneration of electricity and heat.

2.3.7.3.2 (AN - RES) Action Plan for renewable energy sources for the period 2010-2020

The main targets of this plan are financial incentives for companies, entrepreneurs, the public sector, education, domestic economies, agriculture and transport.

AN RES objective is to assess and establish the necessary quantitative value of energy from renewables by individual sectors (heating, cooling, electricity, transport) and to propose measures to be able to use the desired amount of energy from renewables in the coming years. AN RES notes that to achieve up to a 25percent stake in the share of RES of gross final energy a series of measures will be needed on energy efficiency and energy-related policies, which will be key to control growth in energy consumption in the future.

2.3.7.3.3 (PA GHG-1) Operational Programme to reduce greenhouse gas emissions by 2012

Most of the costs associated with implementing GHG OP-1 have already been provided to fund the various programmes (AN-URE, ETID OP, OP-BIOO, Rural Development Programme), and their funding has been approved by EU funds and other sources.

AP-GHG-1 is intended to exercise its obligations under the Kyoto Protocol, sets out the key instruments, the obligation of individual sectors in the implementation of these instruments, and adaptation of instruments, taking into account the criterion of minimising costs in meeting Kyoto commitments.

2.3.7.3.4 (OP ETID) Operational Programme of Environmental and Transport Infrastructure 2007-2013

The main target of this plan is the Cohesion Fund and ERDF (EU resources and national participation).

OP ETID has several development priorities - one of them is a sustainable use of energy, which is assembled from the four priority directions:

- improving energy and sustainable construction of buildings, efficient use of electricity
- innovative measures for local supply
- demonstration projects
- information and energy advice

2.3.7.3.5 Rural Development Programme (European Agricultural Fund for Rural Development)

1) Measure 121: Investment in energy efficiency and renewable energy for farm biogas production using organic waste.
2) Measure 122: Investment in modern machinery and equipment for work in forests (wood biomass production)
3) Action 123: Adding value to agricultural and forestry products, investment in equipment to generate energy from renewable sources for their own use
4) Measure 311: Production of energy from renewable sources for sale on farms. Investment intended for the production of biogas by using organic waste for processing biomass with investment for renewable energy. Investment aimed at infrastructure for renewable energy from biomass and other renewable energy sources.
5) Action 312: Supporting the creation and development of micro-production of energy from renewable sources for sale. Investment for processing biomass for renewable energy, infrastructure investment intended for renewable energy from biomass and other renewable energy sources.

2.3.7.3.6 National Energy Plan (Official Gazette of RS, no. 57/04)

There is no further information provided from the partner for this plan. The plan is still in the preparatory process.

2.3.7.3.7 Environmental tax for air pollution with CO_2

There is no further information provided from the partner for this plan. The plan is still in the preparatory process.

2.3.7.3.8 Operational Programme for the use of biomass

There is no further information provided from the partner for this plan. The plan is itself still in the planning process. The final version is in preparation.

2.3.7.4National Regulations

2.3.7.4.1 Energy Act (Official Gazette of RS, no. 79/99, and all amendments and supplements)

The main aim of this regulation is promotion of energy efficiency measures and renewable energy use in State programmes: education, information, public awareness, energy consulting, promotion of energy auditing, promotion of local energy concepts, the establishment of standards and technical regulations, fiscal measures, financial incentives and other forms of incentives. The Regulation sets out the principles of energy policy, rules

of operation of the energy market, procedures and forms of public utility services in the energy sector, the principles of security and energy efficiency, energy conditions of operational plants, the conditions for the performance of energy activities, regulated energy licensing and permits, and bodies carrying out administrative functions under the provisions of the Energy Act.

This regulation is effective since 1999.

2.3.7.4.2 Environmental Protection Act

This law regulates the protection of the environment from adverse impacts as a prerequisite for sustainable development and in this context, all the basic principles of environmental protection, protection measures, monitoring and information on economic and financial instruments of protection, public utilities and environmental protection and other protection of the environment related issues.

The purpose of the law is to promote environmental protection and the social development of such guidance, which allows long-term conditions for human health, wellbeing and quality of life and biodiversity conservation.

The objectives of environmental protection are, in particular:

1) Preventing and reducing pollution
2) Maintaining and improving environmental quality
3) Sustainable use of natural resources
4) Reducing energy use and increasing use of renewable energy sources
5) Countering the effects of environmental pollution, improving destroyed natural balances and re-establishment of regeneration abilities
6) Substantial increase in the efficiency of production and consumption
7) Abandoning and substituting hazardous substances.

To achieve the objectives of the preceding paragraph:

1) Promote production and consumption which contributes to reducing the environmental impact
2) Promote the development and use of technologies that prevent, eliminate or reduce environmental pollution
3) Paying for pollution and use of natural resources

2.3.7.4.3 Regulations on energy efficiency in buildings (Pures) (2008 AND 2010) / Policy on Efficient use of energy and buildings

This regulation sets out the essential requirements which must be met by energy - efficient buildings and lays down principles to be followed in their design.

2.3.7.4.4 Construction Act

This law regulates the conditions for the construction of all facilities, provides the essential requirements and their compliance with the characteristics of the facilities, provides the method and conditions for carrying out activities in the field of construction and the organization and area of two professional associations governing the inspection and supervision, provides for sanctions for offenses that are in the field of construction and regulating other matters related to building construction.

The provisions of this Act do not apply to construction of facilities necessary to directly threatened natural and other disasters, or in order to prevent or minimise their effects on buildings for protection, rescue and help during natural and other disasters and to build military engineering, shelters and other protective facilities during an emergency or state of war.

The Construction Act is effective since 2002.

2.3.7.4.5 Technical guideline for the construction of TSG-1-004 Energy Efficiency

This regulation provides building measures and solutions, and the characteristics of systems in the building. It prescribes methodology for calculating the energy performance of buildings.

2.3.7.4.6 Regulation on the promotion of biofuels and other renewable fuels for motor vehicles

This regulation complies with the European Parliament and Council 2003/30/EC of 8 May 2003 on the promotion of biofuels and other renewable fuels for transport, the types of biofuels subject to this regulation, the proportions of annual volumes of biofuels that are placed on the market in the Republic of Slovenia for motor vehicles, the obligations of distributors of fuel for motor vehicles concerning the placing of biofuels on the market, making the application for biofuels on the market, determining the quantity of biofuels for motor vehicles and monitoring the implementation of this regulation.

This regulation is effective since 2007.

2.3.7.4.7 Regulation on Green Public Procurement

The car fleet of the public sector moves over time to cleaner vehicles, which is the main aim of this regulation.

2.3.7.5Regional Plans

2.3.7.5.1 Regional Development Programme of Pomurje region

This programme contains projects for energy efficiency in private and public buildings, for the replacement of outdated boilers, for the production or manufacturing of natural materials for energy purposes and for investment in pilot and demonstration cases or studies, and for promotion and awareness. It also contains projects related to renewable energy sources concerning the construction of systems for the exploitation of solar energy, investment in infrastructure and systems for the use of biomass, production of raw materials and biodiesel production, investment in infrastructure and systems for geothermal energy, the exploitation of other renewable energy sources, and for promotion and awareness.

This development program is in the effect since 2007 and will be in effect until 2013.

2.3.7.6Regional Regulations

2.3.7.6.1 The Law on Pomurje region development and support to the region during the period 2010-2015

The main aim of this law is the development of support measures aimed at creating new jobs and retaining existing building development infrastructure and countering the effects of economic and financial crisis in the Pomurje region along with stimulation of Pomurje's competitiveness, including geothermal and other renewable sources of energy.

2.3.7.7Barriers

The biggest problems in implementing the reduction of CO_2 and other greenhouse gas emissions and energy efficiency are still in the acquisition of necessary permits. Procedures are too bureaucratic and people are reluctant to decide for installation, which would allow the reduction of emissions. In the field with the largest discharges, i.e. industry, things move very slowly. Here problems are all associated with politics, since changes require investment in technology, for which, in most companies there is insufficient money, and political sensitivities do not wish to see social problems arising from the potential for redundancies.

2.3.7.7.1 Energy Sustainability

Barriers in the energy sustainability category can be identified as:

1) **Lack of adequate technical assistance and expert advice on financial incentives**

Great difficulties exist in the renovation of buildings for example, in order to obtain all sorts of licenses and other bureaucratic obstacles are present. Problems are also related to purchases of new products that are environmentally friendly, with the difficulty of appropriate technical direction and integration into the market.

2) **Too much bureaucracy and administration**

Problems exist also in obtaining an appropriate permit (primarily environmental), because there are many, especially bureaucratic, obstacles.

3) **Lack of connections between different disciplines (engineering, environment, culture)**

The problems are in obtaining consensus in the protection of monuments or monument protected old buildings, for example if we put solar panels on the roof of a building. There are various required consents, the environmental permit, in some cases water consent, consent regarding monuments in a nature-protection agreement.

2.3.7.7.2 CO_2 Reduction

The main barrier in this category is lack of awareness and education. It is necessary to introduce more educational content into regular classes at primary and secondary schools. It is important to organise more courses and provide more information on environmental topics for the general public. Especially the industry sector should be targeted, because it is the biggest polluter. There are too few mechanisms developed to prevent additional emissions of CO_2. Therefore the public is not so interested in treatment in terms of actually reducing emissions.

2.3.7.8Risks

The risks are mainly present in the economic area of potential funding of such projects by the municipalities, or other project applicants. In today's economic crisis it is certainly expected that municipalities would rather see any money allocated for social issues. Therefore, the numbers that determine how much energy would be saved, and by how much CO_2 would be reduced, is hard to reach. It is easier for those projects that have a relatively high degree of co-financing on a project by project basis depending on what should be the starting contributions, and how the funds are channeled.

2.3.7.9Existing incentives which can support municipal energy strategies and planning

For Slovenia generally there are the following programmes and initiatives that can assist municipalities in achieving their energy programmes:

1) OP GHG; (to meet the obligations under the Kyoto Protocol: 8% reduction of GHG emissions by 2008 to 2012 according to 1986 emissions); it is active in the period 2008-2012; it is planned to reduce the emission of CO2 by 5125 kt.
2) AP – RUE; (to meet its obligations under Directive 2006/32/EC to reach 9% of final energy savings over the previous spending in sectors outside the ETS); it is active in the period 2008-2016; it is planned to reduce CO2 emissions in 2012 by 637 kt CO2 equiv. and in 2016 by 1147 kt CO2 equiv. The cost is estimated at 380 million Euros.
3) PA – Waste; (the operational programme for waste disposal with the aim of reducing biodegradable waste); it is planned to be active in the period 2007 – 2015; the costs are approximated to 770 million Euros.
4) OP ETID - Sustainable energy development priority (IP for the disbursement of EU Cohesion Fund in the field of efficient energy); active in the period 2007-2013; it is planned to reduce CO2 emissions in 2013 by 728 kt of CO2 equiv., the cost is approximately 188 million Euros.
5) Resolution on national development projects, sustainable energy projects, and the hydrogen economy (EV); (Development investment projects the realization of which will contribute to achieve the objectives of the SRS and the NDP for the field of RUE, RES, and EV); the reduction of sustainable energy is approximately 1626 kt of CO2 equiv. and costs would reach 476 million Euros in the period 2007-2023.

2.3.7.10 Recommendations

The policy of reducing emissions and energy efficiency is well integrated in the programme "Sustainable Energy". The programme "Sustainable energy" is the implementation of the National Energy Programme (NEP), adopted by the National Assembly in April 2004. The programme refers to increasing energy efficiency in industry, services and the public sector, transport, households and agriculture, and aims to significantly increase the volume of environmentally friendly energy production from renewable sources and cogeneration systems, heat and power (CHP). Implementation of the programme will contribute significantly to meeting the obligations of Slovenia in reducing greenhouse gas

emissions under the Kyoto Protocol and the objectives arising from EU directives and the NEP. The objectives of this programme are:

1) Energy security, including an acceptable level of dependence on energy imports
2) The competitiveness of energy supply and environmental protection
3) Increase competitiveness in an area where we have the knowledge and tradition
4) Technological developments in the field of construction and other materials, furniture, energy technologies and systems, information technology, etc.
5) Opening up to the possibility of at least 5000 direct jobs
6) Promote regional development, especially on the basis of greater use of renewable energy
7) Reduction of energy costs and thereby increasing the competitiveness of the economy (especially energy-intensive industries), so reducing the burden on public finances
8) Active involvement of a large number of residents in implementing activities to reduce energy use and thereby reduce their own energy costs
9) Improvement of living comfort and working conditions of citizens and consequently reducing costs for health care

The programme is in accordance with the Development Strategy of Slovenia, EU policy documents on energy, environmental and cohesion policies for growth and employment and the requirements of the directives for energy efficiency and also promotes renewable energy sources.

2.3.7.11 Conclusions

Measures to promote technological development and cost reductions mean new energy technologies must be complemented by policy measures to open markets and ensure the market penetration of existing technologies that are effective in addressing climate change. New technologies entering the market are faced with significant barriers due to competition with established technologies and huge investments that are tied to the current energy system, largely based on fossil fuels and centralized production. Intelligent Energy for Europe will provide the necessary tools and mechanisms to overcome obstacles which are not technical in nature, which will be then used for new and efficient energy technologies.

2.3.8 Poland

Poland participated through one target NUTS 2 region, which is called Podkarpackie Province.

2.3.8.1Summary

The Development Strategy of Renewable Energy in the Podkarpackie Province is an attempt to respond to contemporary challenges of energy and climate on a regional scale. The document is a detailed diagnosis of the region's energy policy, with particular emphasis on renewable energy sources (RES). It aims to provide long-term strategy for RES development with regard to ambitious EU aims and the planned actions of the government and to contribute to increased national energy security. The aim of the strategy is to provide scheme activities for local and regional authorities from across the region, as well as for those co-creating energy policies in the region.

Its main goal is to optimise potential mineral resources and the geopolitical position which Podkarpackie province can play in bilateral relations with its neighbours. The strategy provides a thorough analysis of Podkarpackie with the current and planned demand for energy. Presented were all kinds of renewable energy and the capabilities of the province in connection with the implementation of specific actions supporting the development of OZE. Ongoing monitoring of implementation of the Strategy will make it easier to define indicators for the implementation of the guidelines document.

2.3.8.2Characteristics

The increase in energy demand, the depletion of fossil fuel deposits, and progressive changes in climate contribute to the global development of renewable energy sources. The enormous potential of renewable energy resource reserves boost global interest in this area of energy.

The economic viability of investment in renewable energy sources systematically increases, and the EU is becoming one of the main promoters of the development of unconventional energy. The European Union is facing the need to address the whole range of energy and climate challenges. Certainly one of the most important of them is the constant increase in energy demand, which is caused by the continuous development of economies, rising national energy consumption, technological progress, as well as increasing population, which according to the forecasts of the Energy Regulatory Authority in 2020 will reach 7.9 billion.

2.3.8.2.1 Plans and regulations summary

Increasing the share of RES in the energy balance of the region will contribute to sustainable energy development in Podkarpackie province. With regard to wind energy, there will be preferred investments located in the areas that are not covered by any form of conservation. It is also important to allow for easy balancing of power supply instability through the use of other energy sources, which are incorporated into the system.

2.3.8.3National Plans

2.3.8.3.1 National Development Plan 2007-2013

The document discusses the directions of development in Poland together with strategic actions in varying ranges. In terms of energy, the main objective is to increase the share of renewable energy in the overall energy balance of Poland.

For the regions, the impact of adopted policies and measures is estimated at around 15%. The document is a determinant of regional policies pursued by local authorities at all levels, in particular the provincial.

This document is effective since 2007 and is valid to 2020.

2.3.8.3.2 Energy policy of Poland to 2030

The main aim of the document is to indicate the direction of Polish energy sector development including increasing the share of renewable energy in the overall energy balance of Poland.

For the regions, the impact of adopted policies and measures is estimated at around 20%. The document is (along with the National Development Plan), the determinant of regional policies pursued by local authorities at all levels, in particular the provincial.

This document is effective since 2007 and is valid to 2030.

2.3.8.4National Regulations

2.3.8.4.1 Directive 2009/28/WE

The main aim of the Directive is to promote the use of renewable energy sources. The Directive recommends that 15% of the contribution to the common energy balance should be renewable energy.

This Directive of the European Parliament is valid from 2009 to 2020

2.3.8.4.2 Directive 2001/80/WE

The main aim of this Directive is reduction of emission of some of the air pollution. The Directive recommends that carbon dioxide emission should be less than 208,5 tons per year.

This Directive of the European Parliament is valid in Poland from 2008 to 2012

2.3.8.5Regional Plans

2.3.8.5.1 Strategy of Renewable Energy Sources Development in Podkarpackie province

Its main objective is to support the development of renewable energy sources in Podkarpackie province. The document is the strategic plan guiding the direction of the development of renewable energy sources in regional policy and Podkarpackie province and translates into the records of local strategies for energy.

This regional strategy plan is valid from 2009.

2.3.8.6Regional Regulations

2.3.8.6.1 Strategy of Podkarpackie Province Development 2007-2020

The main purpose of the document is to define the direction of the Podkarpackie province for the years 2007-2020, which in its range of energy defines the priorities to be transformed into specific action plans, e.g. Development of renewable energy sources and increase of their use.

The document is a strategic plan which forms the basis for the implementation of measures to enhance efficiency and renewable energy sources, including through the implementation of the Regional Operational Programme of Podkarpackie province, and is aimed at restructuring the energy activities in the province.

This document is valid from 2007 to 2020.

2.3.8.7Barriers

Energy security is the mainstay of national security. The degree of dependence of all sectors of the country on energy is so high that any serious failures are able to affect the stability of national security.

2.3.8.7.1 Energy Sustainability

Barriers in the energy sustainability category can be identified as insufficient diversification of energy sources in the province of Podkarpackie and excessive dependence on oil in the balance of energy sources.

In the current structure of energy sources, coal and petroleum are the main source of energy production in the province of Podkarpackie. Excessive reliance mainly on oil production may result in insufficient amounts of energy, because the material is not extracted in sufficient quantity in the province. There are new wells, but this is only the exploration phase. Therefore, it is extremely important to diversify the structure of energy generation. Podkarpackie could increase its energy independence by reducing oil dependence, the development of alternative fuels, renewable energy development and clean coal technology and in the longer term, exploiting hydrogen. An additional factor is also the method of treatment of various energy resources, which is often outdated and inefficient.

2.3.8.7.2 CO_2 Reduction

Barriers in the CO_2 reduction category can be identified as too high a level of coal in the energy sources balance in Poland.

Combustion of coal accounts for 95% of total energy sources from power plants. Poland obtained CO_2 emission limit allowances for 2008-2012 of 208.5 million tons per year. However, without the diversification of sourcing and production of energy the decrease in CO_2 emissions may be difficult to achieve or very expensive for the economy (lack of energy). The aim is for a scheduled reduction in carbon dioxide emissions by 20% compared to its level in 1990.

2.3.8.8Respective authorities and other organisations

The RES Development Strategy of Podkarpackie Province is implemented in the framework of the policy of Podkarpackie Regional Government in energy and its aim is to increase the opportunities to support renewable energy in a local range of options. Regional Government actively participates in the planning of energy and fuel supply, as well as preparing opinions for the development plans of energy companies and municipal projects regarding assumptions for plans related to supply of heat, electricity and gas fuels. Taking into account a reasonable use of the natural environment, a sustainable development of the region and energy policy in the country Podkarpackie Regional Government Strategy RES development is created.

The essential role to play on the local scale is taken primarily by municipalities, which, under the Energy Law (Article 18 par. 1), are responsible for planning and organising the supply of heat, electricity, street lighting plans and the funding of public lighting. In these activities, it is preferable that a mayor would create a plan taking into account possibilities for use of local resources of fuel and energy including opportunities arising from conditions for

the development of renewable energy. Good cooperation with other municipalities and municipal openness to potential investment in the OZE is also very important.

2.3.8.9Risks

Poland should increase the local use of the potential arising from the production of renewable energy. It is necessary to develop the NES (National Electricity System) and to facilitate the joining of new RES capacity to the network. Taking into account the projected increase in energy demand in the country the capacity should be systematically increased. RES Development increases the self-sufficiency of Poland independent from political considerations of countries exporting raw materials energy. Increasing the share of non-conventional energy in the energy balance contributes to the sustainable development of the country's energy. Network Expansion should include the assumptions of "Nature 2000", under which Poland has allocated 8.3 million hectares of protected area. European Ecological Network "Nature 2000" is aimed to protect the biodiversity of the continent, based on Council Directive 79/409/EC on conservation of wild birds (from 2 April 1979) and Council Directive 92/43/EC concerning conservation of natural habitats and of wild fauna and flora (from 21 May 1992), which in Polish legislation can be found in the Nature Conservation Act of 16 April 2004.

Poland should increase the use of agricultural wastelands and take action to combat the increasing deterioration in the country's waters and reduce the pollution. The water resources of Poland (which are up to 1450-1700 m³/year per capita in combination with low annual rainfall and with a 2-3 times higher water holding capacity of Polish industry in comparison with the countries of Western Europe) make it necessary to protect water against pollution and to conserve it. Local use of the potential of unconventional energy contributes to increase security for Poland, which largely depends on gas and oil imports from Russia.

2.3.8.10 Existing incentives which can support municipal energy strategies and planning

The Development Strategy of Renewable Energy in the Podkarpackie Province includes diagnosis of the current situation and priorities and orientations to 2020. Horizon Time Strategy is in line with the timing of the Podkarpackie Regional Development Strategy, to which this document will assist.

The timescales will include a new EU financial perspective covering the period 2014-2020 and rules existing until 2020 related to a functioning trading system for greenhouse gas emissions. In addition, strategic objectives of the energy-climate policy of the European Union are set to 2020, in the plan: "3 x 20 to 2020".

2.3.8.11 Recommendations

The strategy ends with recommendations related to the course of action which should be applied in order to achieve measurable results that increase the share of OZE in the energy balance in the region and increasing energy security of the country. There were presented actions to be taken in the short, medium and long term. Because of the dynamics of change in the energy sector and the changing conditions, it is advisable to take measures to continuously update the Strategy and the Action plan in the view of 2013, that is before the new European Union financial perspective 2014-2020.

2.3.8.12 Conclusions

Most of the EU environmental restrictions relate to greenhouse gas emissions and dust generated during coal combustion. In Poland, almost 95% of electricity is produced in steam turbine power plants burning coal and as a result of this process there is produced large quantities of greenhouse gases and dust. The level of carbonisation in the Polish energy sector is almost 950 kg CO_2/MW. Taking into consideration the purchasing price of a ton of CO_2 emissions estimated for 40 to 60 euro, we can clearly state that electricity prices will be burdened by this additional amount, which will be paid by the ultimate consumer.

Poland's economy is one of the most expensive in range of energy in the EU (three times higher than the EU average), and therefore it is in the interest of the country to reduce the energy intensity of Polish industry with the development of energy effectiveness (due to low efficiency Poland lost 24 TWh per year according to KAPE calculations) which can increase the competitiveness of the economy. In addition, the level of transmission losses is about 9.36% according to KAPE calculations, and the efficiency of the depleted power units is 32-33%.

Measures to reduce transmission losses and modernise the distribution network and transmission are necessary. Certainly, an effective response to climate and energy challenges is the production of energy from renewable sources and clean coal technology implementation.

2.3.9 Spain

Since there were no data provided by this partner, Spain could not be included in this report.

2.3.10 United Kingdom

United Kingdom participated through one target administrative unit – Powys region, which is in Wales.

2.3.10.1 Summary

The targeted municipalities are subject to various plans and regulations. The majority of policies are derived from the UK Government and the Welsh Assembly Government. Energy Plans/Policies have focused on targets but have also introduced various initiatives to aid renewable energy generation and energy efficiency. CERT funding and the Feed in Tariff are just a couple of the initiatives which will help the municipalities meet their CO_2 reduction targets.

2.3.10.2 Characteristics

Powys is subject to many energy related objectives and policies. The area is subject to 4 levels of government, which generate separate policies. These are: European Legislation, National UK Government Legislation, Welsh Assembly Government Legislation and Powys County Council Legislation. The UK government set out many national objectives including reduction targets and initiatives. However the Welsh Assembly Government policies and objectives have the greatest influence on the target municipalities and provide the most support to deliver energy saving and renewable energy generation.

The plans which the municipalities are required to meet include energy policies, climate change policies and renewable energy policies. These include objective targets, but also methods and initiatives that will help meet the targets.

The municipalities are also subject to various regulations. These can be national or local regulations. For example, the Building Regulations are the national building regulations that provide conditions for the building and refurbishment of buildings, and these include specific regulations on the energy efficiency of the buildings. Locally, specific planning policies will govern targets and permit development in the municipalities; these will be outlined in Powys County Councils Local Development Plan.

2.3.10.2.1 Objectives

Objectives and initiatives are constantly changing within energy and climate change. However the objectives and initiatives outlined within the WAG Climate Change Strategy and Energy Statement are ongoing and the initiatives within are applicable and important to the development of the SEAP in the municipalities. The Home Energy Efficiency Scheme and Wales Strategic Energy Performance Investment Programme (Arbed) will be important in the sourcing of funding and giving support to domestic energy efficiency projects.

To promote Renewable Energy, the Feed in Tariff which came into being April 2010 will be vital in developing renewable energy. In addition the Renewable Heat Initiative will support businesses in the development of renewable heat projects.

2.3.10.2.2 Plans and regulations summary

Policies have been developed at a national and regional level. The UK Low Carbon Transition Plan and UK Renewable Energy Strategy set out the national targets and methods of how targets will be met. The Welsh Assembly Government have introduced two policies- a Climate Change Strategy and an Energy Policy Statement to set regional targets (i.e. 3% in CO_2 reduction) and advise residents on how Wales is going to meet its targets in energy efficiency and low carbon technology. Development of existing and new homes and non-domestic buildings is governed by the Building regulations, and improved building targets will help deliver energy savings. There are limited regional plans and regulations. The Powys Unitary Development Plan gives specific guidelines on permitted development in the local region/municipality.

2.3.10.3 National Plans

2.3.10.3.1 UK Low Carbon Transition Plan, issued by UK Government

UK Government departments aim to achieve 40% renewable energy within Electricity by 2020 by funding energy efficiency (funding of £3.2bn), by supporting poorer members of society through the Warm Front scheme and by cutting transport emissions.

There is potential for funding for domestic households through the Warm Front scheme and Clean cash back schemes.

This plan is effective since 2009.

2.3.10.3.2 UK Renewable Energy Strategy, issued by UK Government

The main aim is to achieve more than 30% of electricity generated from renewables, 12% of heat generated from renewables, 10% of transport energy from renewables. There is financial support for renewables of £30bn from 2009 to 2020, creating new opportunities for individuals, communities and businesses to harness renewable energy.

There is potential for increased support and easier planning systems to aid RES development and funding for renewables such as FIT and RHI.

This plan is effective since 2009.

2.3.10.3.3 Climate Change Strategy, issued by Welsh Assembly Government

The Climate Change Strategy was published in October 2010 and outlines initiatives, programmes and measures to be taken by the Assembly and others, including public bodies, to achieve a 3% year on year reduction in greenhouse gas emissions within Wales. In order to achieve this, the Assembly has identified seven principles which it feels are necessary to underpin the overall programme. These are:

1) A comprehensive approach to behaviour change.
2) Leading by example in the Assembly government and the wider public sector to consider climate change in all decision making.
3) Delivering increased energy efficiency, making low carbon transport a reality and building the skills needed to ensure that Wales can make the most of opportunities from a low carbon economy.
4) Making the most of opportunities to cut emissions and adapt to climate change where natural resources, land management pattern and economic position allow.
5) Ensuring that our approach to R&D, technology, innovation and skills help Wales to gain maximum benefit from climate change related business and research.
6) Creating a framework to support effective adaptation that delivers for those most in need and those less able to adapt.
7) Ensuring that land use and spatial planning promote sustainable development and enable a move towards a low carbon economy which takes account of future climate impacts.

While these are principles for the Assembly it is likely that public sector bodies will be asked to contribute to and utilise these in the future.

The strategy discusses the possible effects on Wales and even if the Strategy aims are achieved it is likely that global temperatures will still increase by 2°C by 2020.

2.3.10.3.4 Energy policy statement, issued by the Welsh Assembly Government

This Welsh Assembly Government statement explains what is required to make the ambition for low carbon energy a reality. The statement identifies 3 areas which the Welsh Assembly Government can influence:

1) Maximising energy savings and efficiency
2) A transition to renewable energy/low carbon
3) Making sure the transition provides maximum economic benefits.

This plan is effective since 2010.

2.3.10.4 National Regulations

2.3.10.4.1 Building Regulations - Part L, Conservation of Fuel and Power, issued by UK Government

Planning regulations for building works are required to meet standards for energy efficiency. There are four documents looking at existing and new domestic dwellings and existing and new non-domestic buildings.

Regulations require a 25% relative improvement over the building regulations of 2006 in terms of energy efficiency and conservation of fuel. While the cost of buildings may increase, energy saved will also increase.

Building regulations will result in more energy efficient buildings.

This regulation is effective since 2010.

2.3.10.4.2 The Micro-Generation Scheme, issued by UK Government

This is not a regulation but an industry standard that is required to enable developers to receive grants such as the Feed in Tariff. MCS installers are required for the Feed in Tariff qualification.

2.3.10.5 Regional Plans

2.3.10.5.1 Powys Unitary Development Plan 2001-2016, issued by Powys County Council

This plan provides planning guidance on all aspects of renewable energy generation and advice on developments requiring permits. These targets residents and businesses and provide details on permitted development of the following:

- POLICY E1: Large Scale “Thermal” Power Stations
- POLICY E2: Smaller Scale “Thermal” Power Units
- POLICY E3: Wind Power
- POLICY E4: Removal of Redundant Wind Turbines
- POLICY E5: Off-Site Works
- POLICY E6: Hydro Power
- POLICY E7: Solar Technologies

This plan is effective since 2010.

2.3.10.5.2 Powys Local Development Plan, issued by Powys County Council

This policy is in development and will replace the Powys Unitary Development Plan (see chapter 2.3.10.5.1).

This will be effective from 2012.

2.3.10.5.3 TAN 8 - Welsh Assembly Government, issued by Welsh Assembly Government

This document provides a plan and advice for the following areas and provides knowledge of permit required renewable energy in areas within Wales:

- Renewable Energy and Planning

- Onshore Renewable Energy Technologies
- Design and Energy
- Implications for Development Plans
- Development Control
- Monitoring

This plan is effective since 2005 and is currently being reviewed by the Welsh Assembly Government. The review will be finished in 2011.

2.3.10.6 Regional Regulations

See chapter 2.3.10.5.

2.3.10.7 Barriers

The main barrier, identified by the participating partner, is funding and availability of advice. No other barriers were identified.

2.3.10.7.1 Energy Sustainability

Barriers in the energy sustainability category can be identified such as:

2.3.10.7.2 CO_2 Reduction

Barriers in CO_2 reduction category can be identified such as:

2.3.10.8 Respective authorities and other organisations

As described in Characteristics, the municipalities are subject to 4 different levels of government. These will have legislative authority over the SEAP. However there are other government organisations and community initiatives which will help the development of the SEAP.

Government funded bodies like the Energy Saving Trust (Domestic) and the Carbon Trust (Business and Public Sector), will provide funding and advice to the municipalities and their residents. The Energy Saving Trust for example has a helpline number which residents can ring for energy efficiency advice and access to grant funding.

Within the communities different initiatives are involved. Transition towns are one of the main community-led support mechanisms for SEAP development. Transition towns are led by the community residents themselves and look to make towns more sustainable and energy efficient.

2.3.10.9 Risks

There are limited risks associated with this section. However as time goes by more stringent legislation comes into force, such as the renewal of Building Regulations in 2010 and this has led to more challenging energy efficient building techniques and the working towards actual zero carbon buildings.

In addition as the level of Government spending falls so will the financial support to communities. Cuts to funding such as the Feed in Tariff may limit the take up of renewable initiatives.

2.3.10.10 Existing incentives which can support municipal energy strategies and planning

There are various initiatives which can be used to support the municipal energy strategy plan: The main ones which will affect the municipalities are outlined below:

Energy Efficiency:

1) Fuel Poverty Scheme (NEST) from the Welsh Assembly Government. Started April 2011: Support for persons on Government Benefit and who occupy an energy inefficient building. Support includes:
   - Loft and cavity wall insulation
   - Solid wall insulation
   - Draft proofing
   - Boiler replacement
2) Wales Strategic Energy Performance Investment Programme (Arbed): provides financial support for energy efficiency.
3) CERT (Carbon Emissions Reduction Target): requires all domestic energy suppliers with a customer base in excess of 50,000 customers to make savings in the amount of CO2 emitted by householders. Suppliers meet this target by promoting the uptake of low carbon energy solutions to household energy consumers, thereby assisting them to reduce the carbon footprint of their homes.
4) Government Funded Support Bodies: Energy Saving Trust and Carbon Trust supply advice to residents and businesses on energy efficiency and renewable technology.

Renewable Energy Sources:

1) Feed in Tariff: This is a support mechanism for the introduction of Electricity generating renewable. A person/company installing electricity generating renewable will receive a tariff (income) for every kWh produced. This results in the payback of the investment being lower.
2) Renewable Heat Initiative: Similar to the Feed in Tariff, a tariff is available for every kWh of renewable heat produced. This is mainly available for the public sector and businesses.

2.3.10.11 Recommendations

The policies and regulations will have to be met within the SEAP. The Energy policies promote energy efficiency and renewable energy generation. These, along with the regulations such as building regulations, enable the SEAP to provide challenging CO_2 reduction targets. Barriers such as planning regulations and planning itself have been made less challenging due to recent changes in Government policies.

The support initiatives will enable the SEAP to focus on sourcing funding and advice from various Government entities. The use of CERT funding will enable energy efficiency works to be undertaken for domestic properties, while renewable energy works can be funded through the Feed in Tariff and Renewable Heat Initiative.

2.3.10.12 Conclusions

The National Government has many objectives to meet deriving from Europe and the Kyoto agreement. The objectives are filtered down through to the Welsh Assembly Government who has set a target of reducing CO_2 emissions by 3% year on year.

Targets/Objectives have been set for various areas within the Welsh Assembly Governments Climate Change Strategy. Improvements and recommendations on how to meet the targets are placed within these policy documents. These have led to various initiatives aimed at increasing renewable energy and increasing energy efficiency.

Initiatives available to the municipal areas will aid the SEAP creation and help meet the Covenant of Mayor targets. The main barrier to meeting the targets is finance. It is vital that initiatives such as the Feed in Tariff and CERT funding are sourced to meet the reduction targets required.

2.3.11 Romania

Romania participated through one target NUTS 2 level region, which is called Centru region.

2.3.11.1 Summary

Despite the positive developments in recent years, the municipalities in Centru Region are still lagging behind other European municipalities as regards the reduction of energy consumption. Industry and transport are among the most energy intensive economic sectors, which along with residences make up 90% of the total energy consumption.

Only 4 municipalities from Centru region are members of the Covenant of Mayors and, hopefully, at least another 4 local communities will join the CM with the support of the ENESCOM project.

Currently, several small projects for thermal rehabilitation of buildings (schools, public buildings, blocks of flats etc) or large scale programmes (“Casa Verde”) are being implemented in numerous urban areas as well as other projects aiming at shifting the method of energy production at micro level from traditional fossil fuels to “green energy”. All these actions lead to a reduction of overall energy consumption and have a positive impact on the environment.

The lack of local and regional strategies and action plans for energy could be a major problem in the future for achieving coherent development taking into account the major importance that energy plays in every sector and field of the economic and social life of any community.

2.3.11.2 Characteristics

Regulations and national and regional plans in the following chapter were identified as relevant in relation to the target municipalities, which are: Cugir, Zlatna and Targu Mures.

2.3.11.3 National Plans

2.3.11.3.1 National Strategy for Energy 2007-2020, issued by: Ministry of Economy and Finance

The main goal of the strategy is to ensure that domestic energy consumption from internal energy sources (both for electricity and thermal energy), respects the principles of energy security and sustainable development. The strategy also aims that at least 11% of the energy consumption be obtained from renewable energy sources by 2010.

This strategy involves:

- Cutting the amount of solid fuels used for public buildings heating with positive effect on the local budget
- Decreasing the quantity of energy taken from the National Energy System
- Increased awareness of the cause-effect relationship between non-reliance on fossil energy and sustainable development
- Reduction of CO_2 emissions that will have direct consequences on public health and health expenditure
- Creation of new jobs

  This strategy is effective since 2007.

2.3.11.3.2 National Action Plan for Renewable Energies, issued by: Ministry of Economy, Trade and Business and Environment

The main aim of this plan is to set up the most appropriate action in the field of renewable energies.

The effects of this plan are to be:

- Increasing the share of energy from renewable sources (solar, wind, hydro, urban waste) in total energy consumption
- Improving the energy supply and increasing access to the energy supply
- Boosting local economic development

  This plan is effective since 2010.

2.3.11.4 National Regulations

2.3.11.4.1 Law no. 220/2008 regarding the system for promotion and production of energy from renewable sources, issued by the Parliament of Romania

This law has the following intended impacts:

- Stimulates investment in energy production from RES
- Updates the purchasing share of green certificates
- Offers support for producers of electricity from RES
- Performs the monitoring of support schemes through green certificates
- Sets the prices for energy obtained from RES
- Supplies excess of energy to the national energy grid
- Drafts the rules for issuing and monitoring of guarantees of origin for electricity from RES

  The law is effective since 2009.

2.3.11.4.2 Government Decision no. 1479/2009 regarding the system for promotion and production of energy from renewable sources, issued by the Government of Romania

This regulatory measure sets up the legal framework for renewable energies. It imposes the minimum shares for green energies combined with a system allowing the purchasing of bonuses (green certificates). The main effect is stimulating private investment in RES.

The Decision is effective since 2009.

2.3.11.4.3 Law regarding electricity no. 13/2007, issued by Parliament of Romania

This act sets up the regulatory framework for activities in electricity and heat produced in cogeneration, the optimum use of primary energy resources in terms of accessibility, availability and affordability and safety compliance, quality and environmental protection.

The main outputs are:

- Issuing the guarantees of origin of electricity from RES
- Issuing the Regulations on the rules that govern the electricity market of RES
- Requiring operators to guarantee the supply of electricity from RES

The act is effective since 2007.

2.3.11.4.4 Other government decisions

The following decisions were not provided with further information by the participating partner, but should be mentioned to make the list complete:

- Government Decision no. 1892/2004 regarding the promotion of production of electricity from renewable sources; effective since 2008
- Government Decision no. 1429/2004 regarding the approval of the Regulation concerning the guarantees of origin of electricity from RES; effective since 2004
- Government Decision no. 750/2008 regarding the approval of State Aid Scheme concerning the exploitation of RES; effective since 2008
- Government Decision no. 1661/ 2008 regarding the National Programme for Increasing energy efficiency and the use of RES in the public sector 2009-2010; effective since 2008

2.3.11.5 Regional Plans

2.3.11.5.1 The strategy of Centru Region for the use of renewable energy sources 2010-2020, issued by Centru Regional Development Agency

The strategy aims to establish a framework for promoting renewable energies through:

- correlating the actions of the local and regional bodies
- providing an inventory of the potential of RES and of the existing support framework for RES
- identifying the specific actions necessary for the development of renewable energies

The main effects are:

- Securing the energy supply through attaining energy self-sufficiency and non-reliance on imports
- Increasing the diversity of energy resources
- Support for improving the efficiency of energy along the chain of :
    - Resources
    - Production
    - Transport
    - Supply
    - Consumption
- Encouraging the use of bio-fuels
- Promoting the co-generation of energy

The strategy is effective since 2010.

2.3.11.5.2 Energy Masterplan of Alba County 2010-2020, issued by Alba Local Energy Agency

The main objectives of this plan are:

- Identifying the areas of interest for local authorities on reduction of energy consumption
- Setting up the strategic objectives and action modalities for increasing energy efficiency
- Setting up the medium term actions necessary for reaching the strategic goals

The main outputs of this plan are:

- Periodical information about new modalities for producing energy
- Identifying the best locations for wind turbines in order to reach the minimum cost/ benefit ratio

The Energy Masterplan of Alba Country is effective since 2010.

2.3.11.6 Regional Regulations

There were no regional regulations provided by the participating partner for the examined region.

2.3.11.7 Barriers

2.3.11.7.1 Energy Sustainability

For **Zlatna municipality**, barriers in the energy sustainability category are connected with:

- Significant biomass potential resulting from wood processing/ urban wastes
- Hydro and wind potential

These barriers are caused by:

- Lack of studies and research in the field of renewable energy
- Lack of local and regional strategies for the use of renewable energies
- Unclear legal status of the land proper for the production of renewable energy
- Low capacity of local authorities for ensuring the co-financing of projects

These barriers result in a lack of applications for external funding in the field of renewable energies.

For **Cugir municipality**, barriers in the energy sustainability category are connected with:

- Getting electricity using wind turbines, small hydro electric energy production, and obtaining electricity by burning garbage and urban and agriculture wastes
- Electricity generated by plants using solar energy

These barriers are caused by:

- High cost of the investment in wind turbines and technical difficulties when transporting them on the narrow roads of the mountainous regions
- Micro-hydropower plants would cause environmental damage
- High cost of processing and incinerating urban wastes
- Lower duration and intensity of solar radiation in our mountainous region are limiting factors for attaining a satisfying efficiency of solar energy

2.3.11.7.2 CO_2 Reduction

In **Zlatna municipality**, based on information provided by the participating partner, although technical and economic documentation for the thermal rehabilitation of 10 multi-level buildings is ready, the low capacity of local authorities and of owners associations for ensuring the co-financing of the projects causes delays in implementation of the activities plan approved by the Government Decision no. 18/2009.

In **Cugir municipality**, CO_2 reduction barriers are connected with:

- Replacement of the existing power plants in order to increase the energy efficiency of public buildings
- Thermal insulation of buildings
- New technologies for producing heat and electricity
- New solutions to decrease energy consumption necessary for public lighting

These barriers are caused by insufficient funds and lack of staff with experience in applying for financing programmes.

2.3.11.8 Respective authorities and other organisations

The Ministry of Economy, Trade and Business Environment is the responsible authority for designing the national energy policy in Romania.

The National Authority for Regulation in the field of Energy has the role to create and apply the regulation system necessary to assure the functioning of the energy sector and the electrical and thermal energy and natural gas markets in conditions of efficiency, competition and transparency. It is responsible also for the implementation of the regulation system for energy efficiency and promotion of utilisation of renewable energy resources among final consumers.

2.3.11.9 Risks

The lack of local and regional strategies and action plans for energy could be a major problem in the future for achieving coherent development taking into account the major

importance that energy plays in every sector and aspect of economic and social life of any community.

A few barriers are noticed by municipalities from Centru region in implementing measures for reducing CO_2 emissions, energy saving and utilization of RER and are mentioned in the following text:

- High cost of investment in wind turbines and technical difficulties when transporting them on narrow roads in the mountainous regions
- Micro-hydropower plants would cause environmental damage
- High cost of processing and incinerating urban wastes
- Lower duration and intensity of solar radiation in mountainous region are limiting factors for attaining a satisfying efficiency of solar energy
- Insufficient funds and lack of staff with experience in applying for financing programmes
- Insufficient information and low level of awareness among the general public about the benefits of using renewable energy could lead to misunderstanding and low interest among consumers as regards the use of renewable sources
- Relatively high inception costs are an additional factor that could discourage the use of alternative sources of energy

2.3.11.10 Existing incentives which can support municipal energy strategies and planning

Two programmes are running now in Romania for supporting energy efficiency, utilisation of renewable energy resources and energy saving.

While the Green Energy programme aims to support the introduction of new systems based on renewable energy resources in individual households, the Sectoral Operational Programme for Economic Competitiveness, axis 4.2 can be considered a potential support for implementation of strategic action plans for energy. The amount allocated (about 60 million Euro for 2007-2013) to support local authorities in implementing sustainable energy projects through the above mentioned program does not cover the needs of the local communities.

- Casa Verde (Green House) Programme. This programme aims to stimulate individuals to use heating systems based on renewable energy (including replacing or supplementing traditional heating systems). Individuals may submit their grant applications to county agencies for environmental protection in the localities in which they reside.
- The National Programme for raising energy efficiency, co-financed by the National Authority for Regulation in the field of Energy 2009-2010 had as a main target to support local municipalities in making investments in energy efficiency such as modernisation of municipal heating plants, utilization of renewable energy resources, shifting the fuel used in obtaining heating, etc. The programme was financed with funds from the national budget.
- The Sectoral Operational Programme for Economic Competitiveness has specific objectives to increase energy efficiency and to stimulate sustainable energy. In consequence, there is the aim to reduce energy intensity by 40% by 2015 compared

with 2001 and to reduce the pollution generated by the energy sector. The programme is co-financed by the European Union through FEDER.

2.3.11.11 Recommendations

- Continuation of the current programmes aiming to improve the energy efficiency of buildings and further extension of local projects carried out in the field of thermal rehabilitation of buildings
- Tighter regulations applicable to newly constructed buildings as regards the introduction of energy efficiency standards
- More effective programmes and measures aiming to improve the urban transport infrastructure and to reduce pollution in urban areas
- Financial support for companies which invest in green technologies
- Elaboration of strategic action plans for energy

2.3.11.12 Conclusions

Despite the positive developments in recent years, the municipalities in Centru Region are still lagging behind other European municipalities as regards the reduction of energy consumption. Industry and transport are among the most energy intensive economic sectors, which along with residences make up 90% of the total energy consumption.

Only 4 municipalities from Centru region are members of the Covenant of Mayors and, hopefully, at least another 4 local communities will join the CM with the support of the ENESCOM project.

Additional support will be needed from national and European authorities in order to properly implement and achieve the goals of the strategic action plans for energy in the coming years.

2.3.12 France

France has participated through one target NUTS 2 level region – Brittany.

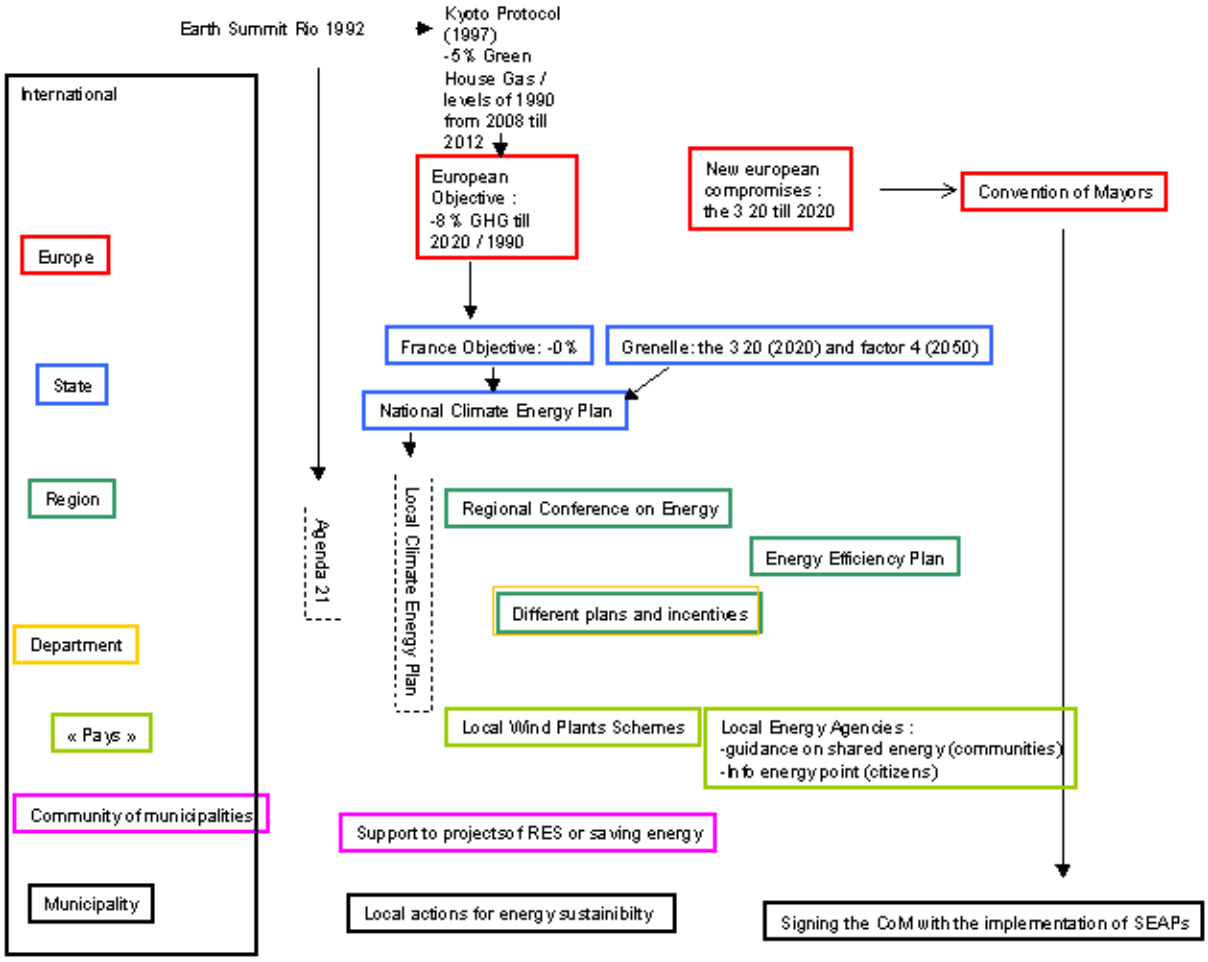
2.3.12.1 Summary

In Brittany, from the national to the departmental level, at least 15 different programmes and regulations are listed, and this list is not totally exhaustive. When the fact is added, that for each programme, there are various factors involved, it underlines the diversity of it all. This diversity, from one side, demonstrates interest in the energy and climate issue, but, on the other side, it generates cross-over and a lack of global efficiency. However, the implementation of the Territorial Climate Energy Plans seems to be quickening the process. Even if few communities have already realised it, most of them are in the project. Then the need for local guidance appears clearly as they do not know how to go about dealing with it. In the context of the economic crisis, the permanence of the existing incentives (buying price of RER, support for investments, etc.) is questioned, and there is a risk of seeing a decline in the national objectives related with the environment and energy, as already shown in Grenelle 2.

2.3.12.2 Characteristics

The following Figure 2 shows the scheme of the global organization of the plans and regulations from European to local level in France. This scheme is really simplified regarding the reality in order to make evident the origin and articulation of the policies and plans. We will detail and show the inner complexity of it all in the following parts of this document.

Figure 2: The global organization of the plans and regulations from European to local level in France



2.3.12.2.1 Objectives – local energy policy

The national objectives, proceeding from international and European commitments and that have been applied at the regional level are:

- The 3 20s (-20% of energy consumption, -20% of CO2 emissions, +20% of RER) by 2020.
- Stabilisation of CO2 emissions in comparison with the level in 1990, in the period from 2008 to 2012. Then, reduce them by 4 times by 2050.

In 2007, the Grenelle of the Environment gave some operational objectives to achieve these goals:

- By 2012: all the new public buildings will have low energy consumption (BBC: emitting less than 50 KWh/m2/year).
- By 2020: all the new public buildings will be energy positive (BEPOS: buildings that produce more energy than they consume).

- Before the end of 2012, all the State buildings will be engaged in an energy requalification (objective: - 40% of energy consumption and -50% of GHG emission by 2020).
- Regional Climate-Air-Energy Schemes should be approved in 2011 and implemented by the regional authorities.
- Regional wind energy production Schemes should be implemented before 30/09/2012 by regional authorities.
- A national strategy for sea and coast should be implemented, taking into account shore wind energy production and marine turbines.
- All the local urban plans must take into account these schemes.
- 30% of farms should have low energy dependence.

2.3.12.2.2 Social and economic environment

At the national level, the financing of some of the actions intended within the plans, were directly linked to new resources proceeding from the carbon tax. The project of the tax has been recently abandoned, and with the economic crisis, the permanence of several plans, regulations or actions, is held in doubt. This is the case with the national efficiency plan in agriculture. The first year it was implemented was in 2009, and it was financed within the reflation plan; then it was planned that it would be financed by the carbon tax proceeding from the agriculture sector. Project sustainability is questioned nowadays, because it may be better to save invested money or to invest them elsewhere.

The stake in climate change and the specific situation of Brittany being very fragile regarding energy led the regional authorities to establish a consultation process on these topics by creating the Brittany Energy Conference. This Conference was first brought together in January19th2010. This conference brings representatives from local communities, State services, energy stakeholders, union organisations, civil society associations. This consultation should happen at least twice a year and allow putting into coherence the initiatives and integrating the national and international objectives. It is organised around three pillars:

- Development of RER.
- Control of consumption.
- Implementation of a new production plant for peak consumption to limit the risk of a black-out (the argument being that RES such as wind and solar energy cannot solve this problem as their potential of production is weak in winter times when the peak occurs).

During this first meeting in January, the need for a regional organization for energy efficiency was underlined. The two first pillars seem to have unanimous approval, whereas the third one is sharply debated.

This is why 10 environmentalist organisations which were involved in the conference decided to leave it. They accuse the national energy public company, RTE, to be at the very origin of the situation of dependence (with a national politics which has tended to build very big centralised plants and long distance transport based on lines of very high tension) and to give publicity to this dependence in the media for its own profit. The environmentalist organisations think that alternative solutions do exist.

2.3.12.2.3 Development and current state

The principal plan is the Climate Energy Plan. It is a national plan that has to be worked down to local levels. At the national scale others plans exist, linked to the objectives of the Climate Energy Plan, but with specific approaches. Most of them are managed by the State agencies in the regions, consulting with local governments for their local application. However, it remains greatly centralised.

This is the case of the Energy Efficiency Plan (in French, “Plan de Performance Energétique” or PPE), implemented by the Ministry of Agriculture in February 2009. The implementation of this plan has been quickened by the national plan of economic reflation. It focuses on farmers (individual and in groups) to support financially the realization of energy diagnostics of farms and investments linked to energy savings or renewable production.

At the regional level, Brittany has programmes proceeding from national provenance and more specific ones (such as Wood Energy). Some of them allow co-financing of exemplary projects in the field of RER or energy efficiency in buildings. For more details, see the table.

2.3.12.2.4 Plans and regulations summary

One big issue has been the abandonment by the State of the key measure of the carbon tax. So, eventually, Brittany has quite a panoply of plans and regulations which are initiatives but do not give obligations to the stakeholders. With the economic crisis, the financial resources for these plans are in danger, and it is still not planned to introduce new taxes. In the region, it is possible to see that there is a specialisation of the plans and the actors regarding type of energy. However it makes it difficult to have a global vision which endows coherence on it all.

2.3.12.3 National Plans

2.3.12.3.1 National Climate Energy Plan (PCET)

This plan targets reduction of energy consumption and greenhouse gas effects.

The main aim is to reduce energy consumption (-20%), greenhouse gas emissions (-20%), increase renewable energy (+20%) by 2020 and to reduce by 4 greenhouse gas emissions by 2050. This plan took measure of ecological taxes, labelling, and mobility reduction. It encourages local government to develop local plans – the territorial Climate Energy Plan.

This plan is effective by 2012.

2.3.12.3.2 Heat Fund (Fond Chaleur)

This fund encourages heat production made from renewable sources (biomass, geothermal, solar thermic, heat network) from by-products.

This fund is supposed to allow 5.5 millions tep (tons of equivalent oil) of heat production made from renewable sources by 2020. This fund (1 million Euros) finances heat production renewable (from renewable production) projects. The plan assures that the heat price is lower than heat produced by conventional energy.

This fund is effective in the period between 2009 and 2011.

2.3.12.3.3 Energy Performance Plan (PPE) – Agriculture

This plan encourages the energy independence of farms.

The main aim is to reach 30% of farms independent for energy. This plan allows for the finance of farm energy diagnostics and energy saving and production projects in agriculture. The beneficiaries can be farmers, agriculture cooperatives, and state-owned enterprises.

This plan is effective since 2009.

2.3.12.4 National Regulations

2.3.12.4.1 Buy-back rates for renewable energy (prix du rachat d'énergie renouvelable)

This regulation encourages renewable energy production by assuring a higher price paid to the producer. Different rates are applied in accordance with the production system. Electricity produced by photovoltaic has a higher price.

It is effective since 2006.

2.3.12.4.2 Tax credits for sustainable development (crédits d'impôt)

This regulation encourages households to invest in sustainable development by allowing households to deduct a part of their investment from their income tax. This credit tax concerns equipment for thermal isolation, renewable energy production, and heating regulation.

Based on equipment, this regulation is effective more or less since 2006.

2.3.12.4.3 Carbon tax

This regulation limited CO_2 emission, but it is already abandoned. In July 2009 the government began to build a legal basis for a carbon tax but in March 2010 this project was cancelled. The explanation given by the French President is that he did not want to tax French industry without taxing imported products, and that it should be a European policy (or an international one) so as to keep our industries competitive.

2.3.12.4.4 Ecological labelling

This regulation encourages the consumer to reduce his carbon impact, by putting labels on products of medium and large retail stores, so the pollution generated by their production (in equivalent CO_2) can be seen.

This labelling will be tested in July 2011.

2.3.12.5 Regional Plans

2.3.12.5.1 Breton Electricity Pact (Pacte Electrique Breton)

The main targets of this plan are:

- Energy consumption control
- Renewable energy production
- Supply
- Peak consumption reduction

There was a regional energy conference (24th September, 2010) to define objectives, to produce an action plan and a schedule for this project. During this conference, state representatives, local governments, energy professionals and associations were for the first time gathered to define this plan.

2.3.12.5.2 Photovoltaic Innovation (Photovoltaique Innovant)

The main target is to encourage energy production made from photovoltaic.

This plan is a regional call for projects that finance innovating projects. The beneficiaries can be all contractors except private individual contractors. The innovation concerns panel technology and architectural integration.

The plan is effective since 2008.

2.3.12.5.3 Low Consumption Buildings (Bâtiments Basse Consommation: BBC)

The main target is to encourage energy saving, thanks to buildings that consume less energy.

This plan is a regional call for projects that finance buildings renovation and construction projects. The beneficiaries can be all contractors except private individual contractors. A building is considered as a Low Consumer (BBC) if it consumes less than 50 KWh/m2/year.

The plan is effective since 2008.

2.3.12.5.4 Wood Energy Plan (Plan Bois Energie)

The main target of this plan is to encourage the wood energy supply chain.

This plan tries to finance wood boiler installation and to organise supply and demand. Objectives for the period 2007-2013 are:

- at least 100 000 tons of torn wood supplementary
- at least 27 500 tep saved by year
- at least 100 MW to be installed
- at least 70 000 tons of CO_2 avoided
- at least 30 millions of € produced by the sector
- at least 30 jobs created

2.3.12.5.5 Biogas Plan (plan biogaz)

The main target is to coordinate methanogenesis development.

The plan targets information, awareness, structured equipment supply, installation projects assistance and finance. The activation of the plan is realized by an association (a local energy agency, AILE). The beneficiaries can be local governments, farmers, agriculture cooperatives, industrialists and methangenesis equipment firms.

This plan is effective since 2007.

2.3.12.5.6 Vir Volt

The main target is experimentation with energy consumption control to identify interesting energy saving projects, reproducible in the department or the region. This regional

project is at first realized at the level of local government (Pays de Saint-Brieuc), and will be applied on a greater scale.

This plan is effective since 2009.

2.3.12.5.7 Regional and Local Schemes for wind energy production development

The main aim of these plans is to increase production through plan ZED (zone of wind production) and allow a larger concentration of wind power plants.

The rules to define the schemes and zones are produced by the Region, the State regional authority and the National Energy Agency. These local schemes cover 70% of the regional territory at present.

These plans are effective since 2006.

2.3.12.6 Regional Regulations

2.3.12.6.1 Ecowatt

This regional regulation reduces energy consumption during peak periods (winter).

People inscribe themselves on a website (www.ecowatt-bretagne.fr) and are contacted at peak consumption so they can reduce their own consumption at that moment. To reduce their consumption means, for example: delay in using washing machines, stop some needless equipment, etc.

The regulation is effective since 2008.

18,700 persons have inscribed themselves since 2008. Since 2010, this project also involves local governments or communities with a mutual commitment and includes local Ecowatt ambassadors.

2.3.12.7 Barriers

There are specific barriers regarding the topic:

- Cost of RES
- Lack of local capacity and public visibility for energy sustainability
- Difficulty to solve a global problem on a local scale for CO2 emission

But, in general, it also underlines the need for global coherence between the politics of energy and the other relevant fields, and of a better coordination between actors and real dialogue with stakeholders and civil society.

2.3.12.7.1 Energy Sustainability

Barriers in the energy sustainability category can be identified as the lack of publicity, technology and local capacity.

Contrary to investment in renewable energy, such as to put in photovoltaic panels or a wind plant, investment in saving energy is less visible to citizens, so they are less attractive to politicians who aim at making publically visible their own actions. It is also true for stakeholders that small investments which could have a quick financial return may seem insignificant in their impact. People also prefer to keep their old heating system when it is still working rather than change it for a more efficient one. It is more about psychological and

cultural barriers. Finally, the technology is still new and it is still difficult to find people with the capacity in the area ; there is little training and education in this field, even less in the region.

In the last few years, partly with the support of European funds, there have been several projects in Brittany to develop specific training for the building sector. As it is only recent, the impact is still to be monitored.

2.3.12.7.2 CO_2 Reduction

Barriers in the CO_2 reduction category can be identified as global effects (transport, urbanism, ways of life).

The problem of reduction of CO_2 is that it is principally due to transport in our region. The issue of transport cannot be solved at a local level, and it also depends on urbanism and territorial organisation on a larger scale. It must be put in line with socio-economic policies operating on a much greater scale. The most vulnerable population is many times more dependent on transport-emitting CO_2. Another big issue deals with housing, and the tendency towards more individual units and more widespread housing in any designated area.

Brittany has always been an isolated region which has benefited from significant investment in road transport, so it is quite easy to use the car whereas, especially in rural areas, there is poor coverage by public or collective transport (as an example, there are in fact no trains to the centre of the region). There is actually a major project to improve the train time between Paris (capital of the country) and Rennes (capital of the region) and the others principal regional cities: these policies are focused on the biggest cities.

2.3.12.7.3 RES potential inclusion

Barriers in the RES potential inclusion category can be identified as cost, the technology and social acceptability.

For a lot of RES, the cost of investment and production remains high and without public support for this cost, it would not be sustainable at the economic level. The technology is still to improve, and sometimes there are problems of regulation and coexistence with others installations in the territory: as an example, it is not possible to put wind plants near an airport. Ultimately, some kinds of RES are simply not wanted locally by certain groups of people, and it may be the case for wind plant, biomass, etc.

As an example concerning social acceptability, stakeholders wanting to invest in large wind plant parks tend to go to another region because of rejection by the local population. Then, it is important to underline that the national politics of buying the RES at a higher price with the support of public funds is not assured over the next years so it means it will be necessary to keep improving the technology.

2.3.12.8 Respective authorities and other organisations

The following table shows different public actors and their competencies and actions at the regional level.

Table 2: Different public actor and their competencies and actions at the regional level (France, Bretagne)

Authority or organisation	Type of organisation	Competencies	Actions
State services in the	State services, public	Apply national policies at	In charge of the administration of

Region : DREAL (Regional Direction of Planning, Housing and Environment), DRAAF (Regional Direction of Alimentation, Agriculture and Forest, etc. And in the departments (DDTM, etc.)	organization, mostly administrative	the regional and departmental levels.	the demands for the PPE as an example.
Regional Council	Local government (Brittany)	Organize regional consultation. Apply European and national politics by regional schemes. *Fields :* Regional planning and transports. Education (college) and adult training. Economic development.	Implementation of the Regional Conference on Energy. Financial supports to national programmes. Regional programmes: BBC, Photovoltaic innovating, etc. Actions on their own properties such as colleges, etc.
Department Council	Local government (Côtes d'Armor)	Implement support programmes linked to the regional ones, but sometimes taking independence. Road transport Energy efficiency of its owned buildings : colleges, social housing, etc.	Example of independence from the regional level, in the photovoltaic field : the Region wanted to only support buildings' projects whereas the Department has chosen to support more simple projects.
RTE (Network and Transport of Energy)	SA (Anonymous Society) with public funds, owned by EDF.	Manage the public network of energy transport in France, between producers and consumers. It also has a role to secure the network, and guarantee the quality of the provision.	Programmes of actions and awareness raising such as Ecowatt.
SDE (Departmental Union of Electricity)	Union of local communities	Coordinate the providing of electricity to citizens (which is a competence of the municipality). Also in charge of the gas in some municipalities.	Nowadays, actions on energy efficiency by making thermic diagnostics and guidance to small municipalities (for isolation and regulation of heating in the buildings, public lightening, with experimentation of new materials such as LED, etc.). It is to notice that they have competitive competencies with the Local Agencies for Energy. In the project of a new Local Agency in the Côtes d'Armor, Pays de Guingamp, it is planned to sign a convention between the two of them.
ADEME (National Agency for Environment and Energy Control)	Public organisation depending on the Ministry of Research, Ecology and Energy. There is a regional agency (in fact for two	In charge of research programmes, expertise, realisation of methodological tools, financial guidance, exemplary actions.	The ADEME and the Regional Council are at the origin of the Energy and Greenhouse gas observatory in Bretagne. It gives information on energy consumption, RER production and

	regions).	Training, information, raising awareness.	GHS emissions. The results will be available from the regional to a more local scale in the next years (up to the municipality scale).
Local Agencies for Energy	Association of local communities, private organizations of professionals and stakeholders, civil society associations, Department and Region councils, ADEME, etc.	2 principal missions : shared guidance for communities, and info point for citizens. An agency is for a territory of more or less 40 000 inhabitants (scale of "Pays").	In the department of Côtes d'Armor, Brittany, only 2 already exist (Pays de St Brieuc and COB) ; a few others are in project (2 with the help of the ENESCOM project).

Other actors are the private ones.

Some regional associations are in charge of the implementation of regional plans, such as AILE (Association of Local Initiatives for Energy and Environment) which is in charge of the development of wood energy and biogas production.

There also are some local associations involved in awareness-raising and promotion of sustainable development. This is the case of MIR (Mené Initiative Rurale), which is a local CIVAM group in the Côtes d'Armor. This association is involved in a project called Road of the Energies with the local community.

Eventually, the consular chambers became active, such as the craft chamber of St Brieuc (capital of Côtes d'Armor) which instituted an exposition hall about new ways of building and restoring (energy savings, RER, ecological materials): Bâtipôle.

Mixed organisations, with public and private stakeholders, prove to be very interesting in this field. An example is the SCIC RER (a SCIC is a Society Cooperative of Collective Interest), created by the environment commission of the Pays of Dinan (Côtes d'Armor). Its first mission was to structure the wood energy chain in the territory. Nowadays, it is extending its actions to the RES in general. This kind of organisation allows more involvement in policies and, at the same time, develops commercial activities for private stakeholders.

2.3.12.9 Risks

Various risks can be identified:

- The cross-over of competencies between actors, with a lack of global efficiency. Also the lack of coordination between different policy fields (territorial planning, the economy, environment and energy, etc.).
- The permanence of financial supports given the national crisis and the lack of products issued from environmental taxes (such as the carbon tax; in general in France, we have few taxes -"the one who contaminates has to pay").
- The abandonment of key measures by the State (such as the carbon tax) or some decline observed between the 2 Grenelles in France (the one in 2007 and the one in 2010).

The abandonment of the carbon tax may be due to the political context in 2010, when the party of the President lost the regional elections.

Nuclear energy, which was not integrated in the first Grenelle, has been reintroduced in the second one; in case of modification of an existing installation, a public inquiry will not be necessary.

The need for an environmental classification, for integrating the regional schemes (the obligation of having five masts will limit the development of wind energy), and the need to facilitate the big investors (financial groups).

2.3.12.10 Existing incentives which can support municipal energy strategies and planning

The state maintaining higher prices for buying RER energy represents quite a strong incentive to invest in equipment for RER production. This operation is focused on private stakeholders and citizens, and is only opened to the municipalities amongst the local governments (at least till 2010; it seems that it could be changed with the Grenelle 2 and opened to more local governments such as the Department and the Region).

For the considered energies (Hydraulic, Biogas, Wind, Photovoltaic, and Geothermal), EDF is forced to buy from the producers, applying contracted prices. However, some of these prices are being reduced, as the Government judges that it costs too much for the consumers and that other costs of investment have been reduced (buying photovoltaic panels from China, for example).

At the regional level, the programmes launched by the Regional and Departmental Councils to support exemplary investments in photovoltaic, while restoring or building with a low consumption of energy level, are other incentives.

The introduction of Local Agencies of Energy and the shared guidance for communities allows them to benefit from assessment, information, visits, experimentation, etc. The problem is that these agencies, at the moment, do not cover all the regional or departmental territories.

Finally, the putting together of local data by the regional observatory will help them to provide a database and to measure the results of their actions.

2.3.12.11 Recommendations

The involvement of a great number of actors, and, particularly, of all the local communities (from the regional to the municipalities), in the search for energy savings, securing the energy providing and producing local energy, produces a cross-over of competencies and actions. Thus, a first recommendation should be to clarify the competence of each actor, and then to coordinate them.

For the observation (collecting data), all the territorial levels must integrate a database on the energies on its territory, and that have to been consolidated by the regional observatory.

For raising awareness, all the communities must be prepared to initiate and promote, directly or with the help of local agencies, associations, etc. But, it should be the responsibility of the Department or the Region to raise awareness in local politics.

For the programmes of support, all the actions and financial help focused on the final beneficiaries should be managed at the local scale. And there should be a unique local office where citizens and stakeholders can find all the relevant information, and some assessment.

At the level of the municipality (or an association of municipalities or a district depending on size), there could be the main info point. These info points could be coordinated by the local agency for energy (at the level of the Pays), which would keep the competence for energy savings.

A trans-sector approach should also be necessary at all levels, and could be more operationally effective if the integrating level is the local one.

2.3.12.12 Conclusions

The implementation of the Territorial Climate and Energy Plans is quickening the process at local levels. Even if few territories have implemented their plan at present, they are all thinking about it. Then it seems that the issue is how to initiate these plans, and with which methodology, etc. The regional initiative to provide a local database to all municipalities is a good beginning. But, as we have seen, if it lacks local guidance and it is necessary to develop local agencies and info points, then there should be a taking into account the following recommendations: unique local offices, with the involvement of public and private stakeholders, a trans-sector approach, and wide consultation.

2.3.13 Croatia

Since Croatia is not part of the EU yet, the country participated through the whole NUTS 1 level region – Croatia itself. One of the country parts, the Istrian county, is examined closely on the regional level.

2.3.13.1 Summary

All the pertinent energy policies and plans are found at a national level. The development of the energy market in Croatia began in 2001 with the establishment of the Energy Law intended to regulate the measures to ensure a secure and reliable energy supply. The Republic of Croatia has committed within the negotiation process for European Union (EU) membership to transposing the requirements of the Energy end-use efficiency and energy services Directive into its legislative framework. This commitment was fulfilled in December 2008, when the Act on Efficient end-use of Energy was adopted by the Croatian Parliament. Moreover, in October 2009 a new Croatian Strategy for the Energy Sector Development was adopted by the Parliament and it strongly promotes an increase of energy efficiency in all segments of the energy sector, especially in the final energy demand and primary energy production sectors (in power generation facilities design and operational stages). The Strategy considers energy efficiency as an additional and new source of energy and as a basic permanent, long-term principle applying to the functioning and development of the energy system. The primary goal of the Strategy is to reduce energy consumption by implementing cost-effective measures of energy efficiency.

2.3.13.2 Characteristics

The Energy Law introduced in 2002 foresaw the development of an Energy Strategy for a period of ten years. In 2009, before the end of the ten year period, the Croatian Government introduced a new Energy Development Strategy. The Energy Development Strategy intends to ensure safe and reliable energy supply and its efficient production and efficient use, emphasising particularly the use of diverse and renewable energy sources. The

Strategy therefore, ensures environmental protection in all areas of energy activities, encourages competition in energy markets through the principles of impartiality and transparency. Additionally the Strategy seeks to protect energy consumers and connect the Croatian energy system or its parts with the European energy system or energy systems of other countries by establishing a National Energy Programme, increasing investment in energy, enhancing energy efficiency and improving environmental protection measures. In accordance with the Energy Development Strategy, the Croatian Government launched the implementation of National Energy Programmes which provide long-term development goals and direction for incentives for energy efficiency through education, communications, energy advice and the issue of energy publications. The Programmes for energy efficiency are carried out by the Croatian Government and at a local level by the competent bodies of local and regional government.

The main legislative tool for Energy Efficiency is the Law on the Efficient End-use of Energy which was adopted in December 2008. The purpose of this law is to reduce negative environmental impacts from the energy sector, improve the security of energy supply, meet the needs of energy consumers and the international obligations of the Croatian territory to reduce emissions of greenhouse gases and encourage the implementation of energy efficiency in sectors of direct energy consumption. The Law moreover, introduces the National Energy Efficiency Programme and the National Action Plan. The first is a planning document for a ten year period which, in accordance with the Energy Development Strategy, establishes policies for energy efficiency improvement. The National Programme includes also a review and assessment of these needs and a national framework for energy savings and measures to improve energy efficiency. The National Action Plan is a planning document for a period of three years which, in accordance with the National Programme, establishes policies for the implementation of energy efficiency improvements.

2.3.13.2.1 Localisation

The relevant legislation and strategy cover the whole Croatian territory. However, in the past ten years awareness at all levels had developed that the responsibility for energy development is also at regional and local community level and since then the commitments have been entered into by regional and local governments for planning energy development in their areas. According to the National Energy Efficiency Programme and the National Action Plan the several counties produced their County planning document for a period of three years in order to improve the energy efficiency of the final energy consumption in the county.

2.3.13.2.2 Objectives – local energy policy

The Republic of Croatia has assumed obligations in the energy sector. These obligations relate in particular to the opening and development of the Croatian energy market and its integration into the internal energy market of the European Union. In the pre-accession period, Croatia has committed to meet the EU's "3 x 20%" goals by 2020:

- Achieve energy efficiency 20% higher
- Meet 20% of energy requirements from renewable energy sources
- Reduce greenhouse gas emissions by 20%

By using energy efficiency measures, Croatia should reduce direct consumption of energy by 9% in the period from 2008 to 2016.

Therefore, the purpose of the Energy Development Strategy is to define the development of the Croatian energy sector for the period to 2020. The Croatian Energy Development Strategy follows three main energy objectives:

1) Security of energy supply of Croatia should significantly improve. The challenges on which there should be special attention are the dependence on oil imports, lack of security of supply of natural gas and the lack of security and hence, high import dependence of the electricity supply. Security of energy supply is a common issue in all European countries. While each country is responsible for their own security of supply, only through joint activities can the consequences of import dependence be reduced. Effective removal of disturbance in the energy market through the creation of compulsory reserves, construction of storage facilities, diversification of supply sources and routes as well as solidarity actions for the condition of the crisis are all commitments of the Strategy.
2) Competitiveness of the Croatian energy sector will be evaluated within the single European market. Competitiveness of the Croatian energy system is satisfactory for a variety of energy structures in electricity production and with a relatively high share of domestic production of natural gas. The mechanisms for retention, which also raise the competitiveness of the energy system, are the development of energy markets, the openness of the country, sharing the risk in investment, as well as development and technological progress that encourage greater participation of domestic production and services in the construction and operation of energy facilities.
3) Sustainability of the energy system is a challenge for modern development. Energy activities account for approximately 75% of the total emissions of greenhouse gases caused by human activity in the Republic of Croatia. The Republic of Croatia will have a problem in achieving the aim of the Kyoto Protocol, but also the obligations of future international agreements on greenhouse gases if the current development of energy consumption continues and investment in energy efficiency, renewable energy sources and technologies with low greenhouse gas emissions is lacking.

2.3.13.2.3 Social and economic environment

Croatian strengths and opportunities for sustainable energy development rely in geographical location i.e. the geopolitical position of a potential transit country for oil, natural gas and electricity and the environmental benefits of maritime countries with good locations for the construction of energy facilities. Croatia has also favourable conditions for building underground gas storage, hydro, wind, other renewable energy sources, terminals for oil and liquefied natural gas power plants, nuclear power plants, the disposal of low and medium level radioactive waste and other energy facilities. Energy development on the Croatian territory is based on the development of energy markets, but also on geopolitical planning and negotiation of participation in strategic projects that can bring increased security of supply and economic benefits to Croatia.

2.3.13.2.4 Development and current state

Croatian energy import dependence is increasing. The Republic of Croatia imports over 50% of its energy needs. The Croatian balance of primary energy consumption in petroleum and petroleum products accounted for about 50%, and natural gas about 25%. The consumption of energy will grow in the future, while domestic production of oil and natural gas due to the exhaustion of reservoirs will decline. The Croatian Government strongly intends to achieve its obligations under the Kyoto Protocol and EU agreements to reduce greenhouse gases.

In a number of counties there were praiseworthy activities which have already generated positive results. More recently in Croatia the Regional Energy Agencies were formed in order to provide more dynamic processes in each county.

2.3.13.3 National Plans

2.3.13.3.1 Croatian Energy Development Strategy

The strategy is intended to define the development of the Croatian energy sector for the period to 2020. The Energy Strategy was adopted in order to align with the objectives and timeframe of the strategic documents of the European Union.

The Croatian Government proposed to the Croatian Parliament the adoption of new strategies for energy development before the expiry of the Energy Act which provided for a ten year period (2002 - 2012). Therefore, the aim of the strategy is to build a system of balanced relations between secure energy supply, competitiveness and environmental protection in order to provide quality, safe, accessible and adequate energy supplies.

This plan is effective since 16 October, 2009.

2.3.13.4 National Regulations

2.3.13.4.1 Energy Law

This Law regulates the measures for safe and reliable supply of energy and its efficient production and use.

The Croatian Government through this law and action establishes the basis for the implementation of energy policy and planning intended to develop energy activities, markets and services. A special section of the Energy Law deals with Energy Efficiency and Renewable Energy Sources, providing for Energy Efficiency Programs.

This law is effective since 1 January, 2002.

2.3.13.4.2 Law on the Efficient End-use of Energy

The purpose of this Act is to realize the objectives of Croatian sustainable energy development.

Through this law the Croatian Government acts to reduce the negative environmental impacts on the energy sector, improve the security of energy supply, while meeting the needs of energy consumers and the international obligations of Croatia for reducing emissions of greenhouse gases and encouraging the implementation of energy efficiency in sectors of direct energy consumption.

This law is effective since 26 December, 2008.

2.3.13.4.3 Law on Environmental Protection and Energy Efficiency Fund

This law establishes the Fund for environmental protection and energy efficiency, regulates its organization, activities, funding sources, and the purpose and manner of using the Fund resources. Every year financial resources can be allocated to local, regional self-government and legal and natural persons.

The Fund activities include jobs related to financing the preparation, implementation and development of programmes, projects and related activities in the field of conservation, sustainable use, protection and improvement of the environment and in the field of energy efficiency and renewable energy sources.

This law is effective since 1 January, 2004.

2.3.13.5 Regional Plans

2.3.13.5.1 Regional Energy Planning in the Istrian County

The project of regional energy planning in the County of Istria as a demonstration zone has been launched to introduce the regional dimension in the national energy planning and decision-making process, and represents the first efforts to decentralize the implementation of energy policy in Croatia.

Shaping the energy system balanced with environmental protection is due to a developmental focus on tourism and agriculture as of vital interest to Istria, as well as other Croatian counties. Activities conducted under the project included the implementation of zoning and energy surveys in households and the services sector, a thorough analysis of the structure of energy consumption, economic and demographic trends in Istria and forecasting future energy needs. Based on analysis of potential renewable energy sources and measures, rationalisation of consumption opportunities in the county have been identified as well as proposed interventions in the energy sector, in order to produce positive effects on the economic development and environmental protection of Istria.

2.3.13.5.2 R20 - Regions for climate action

The Istrian County signed the "R20 - Regions for climate action" memorandum through which it becomes a member of the R20 network, i.e a network with the aim of creating cooperation and joint projects in the field of renewable energy sources and environmental protection.

R20 Network was established as an international non-profit organization that will develop various projects to promote energy efficiency, renewable energy, community forestry, sustainable agriculture, and promote different public and private climate funds for the development of Climate Projects within the member regions.

2.3.13.6 Regional Regulations

There are no regional regulations in Croatia.

2.3.13.7 Barriers

The problem with energy efficiency and CO_2 reduction in Croatia extends to a large number of barriers that are preventing new procedures and technologies being implemented on a much wider scale. Thus, for energy efficiency, more than for any other part of energy

related fields, policy interventions are greatly needed to enable the removal of barriers and to trigger more energy efficient individual and business behaviour. The barriers for energy efficiency in Croatia fall therefore into one of the following categories:

1) Legislative/institutional insufficiency
2) Capital constraints (high up-front costs and longer payback periods)
3) Behavioural inertia (lack of information, awareness and know-how).

2.3.13.7.1 Energy Sustainability

Barriers in the energy sustainability category can be identified as:

- Legislative/institutional insufficiency
- Lack of appropriate financing
- Lack of knowledge and information
- Lack of indicators and monitoring methods

2.3.13.7.2 CO_2 Reduction

Barriers in the CO_2 reduction category can be identified as:

- Legislative/institutional insufficiency
- Lack of appropriate financing
- Lack of knowledge and information
- Lack of indicators and monitoring methods

2.3.13.8 Respective authorities and other organisations

The Croatian Government and the Regional authorities along with The Ministry of Economy, Labour and Entrepreneurship, The Ministry of Environmental Protection, Physical Planning and Construction and other Croatian bodies and institutes play a key role in shaping a competitive energy market-based on energy efficiency technologies and renewable energy sources. Project evaluation is part of the activities of the government body that manages the Environmental Protection and Energy Efficiency Fund (EPEEF).

At national and local level the lack of human resources, institutional capacity, experience in project financing, including EE and RES projects, constitute the major problems. There is a need for more energy regulations and plans oriented to Regional and County level, implying better and more adequate directions for the different Croatian counties. At the present there is only one extra-budgetary fund dedicated to financing environmental protection, energy efficiency and renewable energy programmes and this specific-purpose fund is the only suitable solution for financing EE and RES projects. Too little information and dissemination activities have been done to raise awareness on energy issues. Monitoring of achievements remains a big challenge, which should be solved by special regulations on information systems for energy efficiency and on procedures for measurement and verification of energy savings.

2.3.13.9 Risks

The risks that Croatia has to overcome are lack of energy and uncertainty in its supply, the steady growth of energy prices and the continued growth of consumption of thermal energy for heating and cooling energy, especially the massive introduction of air

conditioning in buildings, environmental pollution and the several climate changes caused by greenhouse gas emissions in the atmosphere and excessive and irrational energy consumption.

Croatia is therefore trying to increase its share of renewable energy production. However the main constraints of production of electricity from renewable sources in Croatia are the complicated administrative procedures for obtaining necessary documentation (at national and local level starting from acquiring building permits to acquiring eligible producer status) and the preparation phase of many projects takes a very long time. Behind such a slow procedure, the most frequent reason is an inadequate legal framework, particularly when it comes to the connection to the transmission grid. The integration of small scale RES plants (less than 1 MW, but usually in the range up to 200 kW) in the distribution grid in Croatia is very limited. The technical conditions are still not yet developed and transfer of best experience and practice in this field is highly necessary.

2.3.13.10 Existing incentives which can support municipal energy strategies and planning

Funds from The Environmental Protection and Energy Efficiency Fund and loans from the Croatian Bank for Reconstruction and Development (HBOR) are the only incentives that can support the municipalities in the elaboration and implementation of energy plans. The Environmental Protection and Energy Efficiency Fund's resources cannot exceed more than 40% of the eligible investment costs. For the small municipalities this is a great obstacle as the financial capacities of the really small targeted Istrian municipalities are limited.

2.3.13.11 Recommendations

At national level the coordination between the ministries and government institutions needs to increase in order to enhance public awareness on energy and environmental issues, including EE and RES benefits. Investment resources for the private sector could be found through private equity funds and investment companies. However, utilisation of existing resources, including financing mechanisms for EE and RES available in the governmental development bank, is low. Moreover there is a lack of financial and human resources at the national and local levels. Better understanding of the development of project investment or detailed investigation of the technical and financial aspects would be helpful for developing the appropriate legislation and policies. What is basically lacking in Croatia is thorough and in-depth consideration and planning. There is a lot of publicly proclaimed support for renewable energy projects, but little is done on the ground to remove the key obstacles for such projects. Croatia must provide its own ability to promote research and development, and the use of environmentally sustainable technologies as soon as they become economically viable. In accordance the country has to increase investment in education, scientific research and development projects, and systematically promote international cooperation in the field of sustainable energy technologies. Moreover Croatia has to bring measures to the development and capacity building of domestic industry and services, geared to high technology solutions. The Croatian Government is responsible for linking energy policy, industrial policy and higher education and science. Therefore, Croatian energy development has to be supported by strong legislation and based on the best available and economically reasonable technologies.

2.3.13.12 Conclusions

The Croatian Government is facing great challenges in developing a competitive energy market.

The main challenge is long-term economic development with a low carbon footprint. However these challenges are also development opportunities that will bring the implementation of the Kyoto Protocol and other international commitments on CO_2 reductions and integration into the European market. The financial environment in the country is characterised by existing opportunities and availability of financing for EE and RES projects, but on the other hand more information is needed to overcome the lack of awareness on energy and environmental issues, including EE and RES benefits. The new Croatian legislation will have to target several climate change issues and this can be achieved by aiming at energy efficiency, use of renewable energy sources, use of energy sources that do not produce greenhouse gases, a more efficient transportation system with greater use of neutral fuels and the internalisation of external costs of environmental pollution through the establishment of rates for carbon dioxide emitted.

2.3.14 Portugal

Portugal participated through one target NUTS 2 level region – Lisbon district.

2.3.14.1 Summary

The existing regulations and plans at sectoral and geographical level and of very diverse horizons reveal the coexistence of very different approaches from the municipal and regional authorities that bring to the table some challenges on the themes of CO_2 reduction and energy efficiency.

2.3.14.2 Characteristics

Taking into account new objectives for energy policy defined in the Eighteenth Constitutional Government Programme and the need to create a new global framework for approval by the end of January 2010 the National Action Plan for Renewable Energy and the Review of National Action Plan for Energy Efficiency, the government establishes a National Strategy for Energy with the horizon of 2020 (ENE 2020).

The performance targets for Lisbon environmental energy fall under the European goals. Lisbon region aims to achieve these goals in advance by 2013, even though Portugal is committed to achieve them by 2015 under the National Action Plan for Energy Efficiency: Regional Strategy.

2.3.14.2.1 Objectives – local energy policy

Lisbon 2020 "in tune with the Lisbon Agenda", gives priority to science, technology and innovation, environmental and human resources development. It is defining the vision and structuring the projects for the development of the Lisbon Metropolitan Area, serving also as a framework for the Regional Operational Programme 2007 to 2013. This document includes measures related to the area of energy - efficiency and renewable energy:

1) Energy efficiency – lower energy in primary buildings to reduce consumption by 6%; primary energy or transport consumption to reduce by 9% and renewable energy to raise by 20% by 2020

2) Mobility: greenhouse gas emissions from the transport sector to reduce by 8%, reducing GHG emissions 20%, reduction in GHG emissions by 2020

2.3.14.3 National Plans

2.3.14.3.1 National Action Plan for Energy Efficiency

This plan aims at transport, residential buildings, services and industry.

This plan is effective since 20 May, 2008.

2.3.14.3.2 National Energy Strategy 2020

This strategy aims at schools, supply markets, the state public sector, municipalities and private institutions of solidarity. It has the following goals:

1) To reduce the country fossil fuels dependency on external sources through increased production energy from indigenous resources
2) To ensure fulfilling the commitments assumed by Portugal in the context of European policies to combat climate change climate
3) 25% reduction in the import balance of energy with the energy produced from indigenous sources
4) To create wealth and build a cluster in the energy sector of renewable energies in Portugal
5) To develop a cluster associated with industrial energy efficiency

This strategy is effective since 4 August, 2010.

2.3.14.3.3 National Action Plan for Renewable Energy

This action plan aims at transport, electricity and heating and cooling. It is effective since 23 April, 2009.

2.3.14.4 National Regulations

2.3.14.4.1 The Regulation of Energy Systems and Climate in Buildings

This national regulation aims at buildings yet to be constructed and major rehabilitation interventions on buildings. It defines that thermal comfort and hygiene should be required in different spaces of buildings, in line with obligations. It also improves energy efficiency of buildings, not only in consumption for air conditioning, but in all types of relevant energy consumption.

This regulation is effective since 4 April, 2006.

2.3.14.4.2 Regulations Characteristics of Thermal Performance of Buildings (RCCTE)

This regulation aims at residential and small service buildings. It lays down rules to be observed in the design of all residential buildings and for the service buildings without HVAC systems to be centralised.

This regulation is effective since 4 April, 2006.

2.3.14.5 Regional Plans

2.3.14.5.1 Environmental Energy Strategy for Lisbon

This strategy aims to outline and quantify specifics of the city's sustainable development. It is effective since 3 December, 2008.

2.3.14.5.2 Lisbon Regional Strategy 2020

This strategy aims at the environment and energy. It covers the programme called "Lisbon, Metropolis, Environmentally Smart". It is effective since 17 June, 2010.

2.3.14.6 Regional Regulations

There are no regional regulations for the examined region.

2.3.14.7 Barriers

The examined region needs strong awareness locally as well as in the sectors of transport and industry of the Lisbon region, in relation to energy efficiency and CO_2 emissions reduction. Difficulty in project implementation and slowdown in the goals of reducing CO_2 emissions are addressed with proposals in the Action Plans.

2.3.14.7.1 Energy Sustainability

Barriers in the energy sustainability category are being seen especially as only a minor adoption of "Green Technologies" in the residential and industrial sectors, largely due to the significant costs of fixed capital investment involved in acquiring such equipment set against the benefits achieved in the short term, both in the private sector. Another big barrier are energy policies and public participation.

Barriers can be seen as well in:

- Low encouragement of public participation
- Reduced state incentives for the adoption of clean technologies in the private sector
- Conflicting signals on energy policy
- Integration of coherent energy policy
- Land use and urban planning
- Information, transparency and public participation

2.3.14.7.2 CO_2 Reduction

Barriers in CO_2 reduction category can be identified as:

- Quantitative prediction
- Behaviour for individual and collective changes, in particular those associated with road traffic and transport
- Surveillance deficit at the level of industry
- Low supply of new energy technologies
- Weak coordination between transport and industry and regulators
- Little local support

2.3.14.8 Respective authorities and other organisations

- Portuguese Government
- DGEG - Directorate-General of Energy and Geology
- ADENE - Agency to Energy
- IMTT - Institute for Mobility and Land Transport
- ERSE - Energy Services Regulatory Authority
- DGAE - Directorate-General of Economic Activities

2.3.14.9 Risks

- Overlapping goals, lack of cohesion in the various laws and plans of energy
- Diffuse responsibility for monitoring

In the National Action Plan for Renewable Energy 2020 there are barriers to the viability of certain technologies and their goals envisaged in this plan. Although some technologies are already mature, environmental constraints limit development (onshore wind and small hydro). There are technologies where it is necessary to evaluate the best potential (geothermal and biomass - energy crops). There remain questions of R&D especially in offshore wind (fixing of the towers and network connection) and waves, coupled with high installation costs and maintenance.

2.3.14.10 Existing incentives which can support municipal energy strategies and planning

- National Strategic Reference Framework - Operational Programme for the Lisbon Region, 2007-2013
- FEDER - Regional Development Fund
- private companies
- municipalities

2.3.14.11 Recommendations

- Complementarity between potential transport and energy systems, the concept of “vehicle to grid” integration of objectives and targets at the national level should be supported at regional and local levels.
- Action is needed to face the actual trend on energy consumption increase for the Lisbon region, and on a large scale for the country. It becomes necessary to use resources in conventional energy efficiently, both from the standpoint of economy and the environment.
- The use of renewable energy should also be a target of growing interest.
- Any energy policy and plans should be focused on renewable natural resources and energy efficiency, seen as a structuring of land use and urban planning in particular. Any plan should include a monitoring process that can quantify the progress of ongoing actions and measures set out in any plan.

2.3.14.12 Conclusions

There are plenty of regional plans and programmes for energy without crossing between different sectors and without ongoing monitoring. The lack of specific measures on

the time frame of reference complicates the framework and power management at the regional and local level. There are few efficiency programmes actually targeted to the various instruments available.

2.4 Summary and concluding remarks

In this report, 10 partners were presented, while the remaining 4 partners had to be excluded (see chapter 2.2.1.3). Each partner was presented in the different categories following:

1) Summary, where brief summary of information about partner is presented
2) Characteristics, where characteristics of examined country (and regions) are presented
3) National Plans, where national plans in the examined country are presented and briefly described
4) National Regulations, where national regulations in the examined country are presented and briefly described
5) Regional Plans, where regional plans in the examined administrative unit are presented and briefly described
6) Regional Regulations, where regional regulations in the examined administrative unit are presented and briefly described
7) Barriers, where barriers concerning CO_2 emissions, energy efficiency and RES implementation concerning the examined country or region are presented
8) Respective authorities and other organisations, where mentioned these are listed with short description
9) Risks, where risks, obstacles and barriers concerning the examined country or region are mentioned
10) Existing incentives which can support the municipal energy strategy - a plan
11) Recommendations, where recommendation on future progress and possibilities of RES implementation and CO_2 emissions and energy consumption reduction are suggested
12) Conclusions, where brief conclusion of the whole problematic is presented

Most material presented has an informative character and can be used:

1) To get a better perspective on the examined country and its characteristics and specifications and to understand country (region) relations.
2) To become familiar with country plans, regulations, barriers, authorities and organizations.

Information gained this way then can be used by officials on different regional and administrative levels and by respective authorities and organization to optimise processes and to extend knowledge in the relevant topics (see chapter 1.1).

Because of data diversity (see chapter 2.2.1.3), information provided by partners could not be directly compared, but it was not the main objective of this report. On the contrary, the main contribution of this report lies in the diversity of participating partners and the knowledge found in their different behaviours and approaches, emerging from different country conditions, barriers and opportunities.

2.4.1 Local Plans and Regulations

Completely different plans and regulations are implemented in different countries. On the other hand, these plans and regulations often share the same goals, mainly propagation of RES, support of energy saving solutions and emission reduction solutions. Often, a target goal is formulated for some period, which makes an obligation to all participating sides in the process. Regional plans and regulations usually concern specific region-related opportunities or weaknesses, which are being dealt with.

The following Table 3 shows numbers of plans and regulations, provided by each participating partner.

Table 3: Numbers of plans and regulations, provided by each participating partner

Country	National Plans	National Regulations	Regional Plans	Regional Regulations
MT	1	3	1	0
HU	5	6	1	0
CZ	5	5	4	3
SI	8	7	1	1
PL	2	2	1	1
UK	4	2	3	0
RO	2	4	2	0
FR	3	4	7	1
HR	1	3	2	0
PT	3	2	2	0

2.4.2 Barriers

When talking about barriers, partners formulated barriers in the examined country/regions for the following categories:

1) CO_2 reduction
2) Energy consumption
3) RES implementation (optional)

Each participating partner usually provided completely different information, based on specific regional characteristics and legislative environment. Despite that, we can find some similarities, which can be formulated into the following categories:

1) Legislative obstacles, which are usually connected with specific plans (projects) and regulations, but could also be considered as low administrative and legal support of government decisions
2) Technical obstacles, which are usually connected with specific conditions of the examined region
3) Social obstacles, usually connected with education and awareness (both public and government) and with a public-related point of view
4) Financial and economical obstacles, which affect not only government institutions, but private economic subjects as well

2.4.3 Future research

This report is the second of three reports in the WP2 package of the ENESCOM project. The first report contained comparative analysis of energy consumption and

contaminants emissions of participating partners, while the third report will consist of mythological and quantitative transferable methods for the reduction of consumption and CO_2 emissions in the short/medium term, taking into account Pioneer contributions.

3 Appendix

3.1 Data index

3.1.1 List of Figures

3.1.2 List of Tables

3.2 Annex of Tables and Documents

This includes Tables 10 and 11 elaborated for each participating partner in the Project. The Tables include information as a point of departure for Report 2.