EC - EIE Programme - SEIPLED Project

Deliverable D01.1 – D01.6
RMA-WP2-200407

Ecuba
BSU
EAJ
REOC
LEI
ANATOLIKI

Ecuba

"WP 2: METHODOLOGICAL DEVELOPMENT AND TOOLS"

ENERGY MANAGEMENT IN ECOLOGICALLY PLANNED PRODUCTIVE AREAS

Local approach
Local conditions
Barriers
Stakeholders
Planning steps
Expected activities

Abstract of the Project

The SEIPLED general objective is to demonstrate that sustainable energy investment projects can have a positive local economic development impact. The partners will: i) demonstrate the viability of integrated programmes, where the sustainable energy dimension reinforces local development aspects; ii) transfer knowledge to all EU local energy agencies and involve at least 64 external already active contacts, most of them in new MS. The project activity will start with the definition of the local strategy, selection of the financial tools, and integration of proposals in the local economic development plans. This activity will involve a local advisory group, which will express opinion, give advice and contribute to the proposed project plans. The planning phase will provide project plans, to be disseminated through the project website and the active contacts, kept regularly informed during all project steps. A Strategic Environmental Assessment will also be performed.

WP2 Methodological Development and Tools
D01.1 Reports on Methodological Development Approach (RMA).
Objective:
The RMA wants to photograph the state of the art of each region by analysing the local approach in matters of energy consumption in general, energy behaviour in relation to the specific case study each partner presents to develop, analysing the local socio-economic conditions, identify funding measures and identify possible barriers that slow down the procedures in obtaining them. A case study (project) plan takes in consideration all information found and will be developed in relation to these results.

Role and relevance for project:
Establishing a socio-economic picture of the local/national situation in relation to the proposed case study for development of sustainable energy project.

Role and relevance for targeted readers:
Raise awareness of viability of local development through sustainable energy project.

Target groups:
Energy Agencies, Development Agencies, Public Bodies, SME's.

Glossary of abbreviations

National Legislative Decree	**NLD**
Ecologically Equipped Productive Areas	**APEA**
Small and Medium Enterprises	**SME**
Consortium of Productive Areas	**CAP**
Renewable Energy Sources	**RES**
Photovoltaic	**PHV**
Cogeneration (Combined Heat and Power)	**CHP**

Local approach

The Ministry Decree 112/98 (national law) introduced the concept of "Ecologically Planned Productive Areas" (APEA, according to the Italian acronym), committing to the regions the regulation on these areas. In this way, the Emilia-Romagna Region has launched with the regional law 20/2000 the model of APEAs, as a policy to combine a sustainable economic development with a protection of the environment and the natural resources. Three pilot studies are under development to demonstrate the practical feasibility of this concept, including the production of guidelines, the creation of lists of requirements, or implementing planning exercises.
ECUBA is involved in all these three case studies, playing different roles from the general consulting to the partnership in projects or the performance of impact studies.

Objective
The specific objective proposed in the SEIPLED project is the analysis of the energy aspects in these APEA, with special regard to one of the three regional case studies, located in the municipality of Ozzano Emilia, receiving interest from the Bologna Province, which has selected this case as a model for the future implementation of APEA in all new and (gradually) in all existing productive areas.

Methodology

The analysis of the best possible energy supply and use solutions in an APEA will be afforded in three steps:
Identification of the process actors (stakeholders, both public and private)
Identification of criteria and targets
Development of guidelines
Application to the test case.
These steps will be accompanied and evaluated by the advisory group activity.

Expected results

The expected result at the end of the project will be a tool package, to support the planning of APEA in all the Emilia-Romagna Region. The package will be supported by the approval of the advisory committee and will receive the contribution of the organisations operating on the same subject in the other two regional pilot areas (SIPRO in the Ferrara Province and Consorzio Aree Produttive in the Modena Province).

Local conditions

The Emilia-Romagna Region is one of the most industrialised and rich areas of Italy.

Some statistic data of the EMILIA ROMAGNA REGION

Inhabitants: 01/01/2005	4.151.355 (7,10% on national total)
Regional GDP year 2002	110.659,2 million of € (8,7% on national total)
GDP/ Inhabitants PIL year 2000	25.733 € (Italian average: 20195,7)
Annual increase export 2005	+ 7,7% (Italy 4%)
Export value 2005	37,129 milliard of € (12,7% on national total)

Most important industrial sectors in the region: industrial machinery, mechanical devices and car and motorcycle industry.

The less developed area is the southern part, characterised by elevation from 500 to 2000 m asl, mostly belonging to Objective 2. The Provinces have strategies for this area more addressed to tourism, typical food and non-food products, and services, reducing the role of industry. Therefore the industrial areas expansions are mainly in the northern plain area, and usually only expansions of existing areas are foreseen.

The energy balance of the Region is characterised by a strong deficit of electric energy production: only 50% of the consumed energy is produced in the region territory. The draft Energy Regional Plan (now in the final phase of its political development) foresees to go in 10 years from 50 to 100% electricity production in the region. This will be mainly achieved by an improvement of the

energy efficiency of the existing power stations (from oil steam cycles or turbo-gas to combined gas cycles), and by two new combined cycle gas fired power stations are also foreseen in the former petrol-chemical sites of Ravenna and Ferrara. A large development of decentralised production in co-generation schemes (Combined Heat and Power – CHP) is expected, together with energy from wastes and renewable energy (mostly biomass).

	Agricoltura e pesca		Industria		Residenziale		Terziario e P.A.		Trasporti		TOTALE	
	2010	1998-2010 Δ% m.a.	2010	1998-2010 Δ% m.a.	2010	1998-2010 Δ% m.a.	2010	1998-2010 Δ% m.a.	2010	1998-2010 Δ% m.a.	2010	1998-2010 Δ% m.a.
Combustibili solidi (tep)			20.367	-2,6	1.800	-1,2					22.157	-2,5
Combustibili liquidi (tep)	362.546	1,2	292.847	-1,0	239.032	-2,4	59.996	-4,1	3.859.140	0,9	4.792.232	0,4
Combustibili gassosi (tep)	20.796	2,8	2.800.452	1,0	2.338.881	1,2	878.297	1,1	111.558	1,8	6.289.984	1,2
Energia elettrica (tep)	69.737	0,8	1.067.749	1,3	460.555	1,8	553.722	3,0	62.748	2,1	2. 214.511	1,5
Rinnovabili (tep)			4.009	-4,3	35.134	1,2	-				39.143	0,4
TOTALE (tep)	453.079	1,2	4.181.415	0,7	3.074.401	0,8	1.494.052	1,2	4.033.446	1,0	13.236.393	0,9

Tab. 182– Regione Emilia – Romagna: previsione dei consumi finali di energia al 2010 per settore e fonte (ipotesi bassa)

	Agricoltura e pesca		Industria		Residenziale		Terziario e P.A.		Trasporti		TOTALE	
	2010	1998-2010 Δ% m.a.	2010	1998-2010 Δ% m.a.	2010	1998-2010 Δ% m.a.	2010	1998-2010 Δ% m.a.	2010	1998-2010 Δ% m.a.	2010	1998-2010 Δ% m.a.
Combustibili solidi (tep)			21.864	-2,0	1.909	-0,7					23.772	-1,9
Combustibili liquidi (tep)	424.460	2,6	306.512	-1,7	287.066	-1,2	77.836	-1,3	4.491.951	2,2	5.587.825	1,7
Combustibili gassosi (tep)	23.190	3,7	3.493.526	2,7	2.760.125	2,6	1.094.684	2,9	119.503	2,3	7.491.027	2,7
Energia elettrica (tep)	79.903	1,9	1.185.900	2,2	521.678	2,7	633.114	3,4	70.356	3,1	2.490.951	2,6
Rinnovabili (tep)			4.622	-3,2	39.237	2,1	-				43.859	1,3
TOTALE (tep)	527.553	2,5	5.012.423	2,2	3.610.015	2,2	1.805.634	2,8	4.681.810	2,2	15.637.434	2,3

Tab. 183 – Regione Emilia – Romagna: previsione dei consumi finali di energia al 2010 per settore e fonte (ipotesi alta)

Source: Emilia Romagna Regional Energy Programme

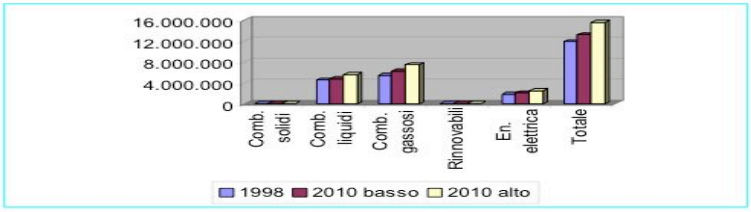


Fig. 76 – Regione Emilia – Romagna: consumi energetici finali in Emilia-Romagna e previsioni al 2010 nei due scenari, per fonte - tep

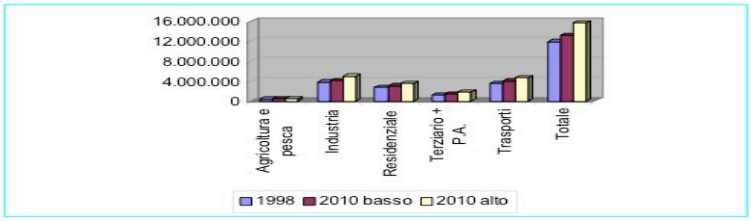


Fig. 77 – Regione Emilia–Romagna: consumi energetici finali in Emilia-Romagna e previsioni al 2010 nei due scenari, per settore - tep

The environmental situation of the plain is very delicate, as during the wintertime (from October to March) the atmosphere is characterised by thermal inversions, trapping all the pollutants in the first layers. The very industrialised Po river valley is considered as one of the most polluted areas of Europe and of the world. The region is developing new regulations for air quality, including traffic

restrictions, cleaner fuels for electric production and vehicles, control on heating plants, but the effectiveness is still very low.
The new regional law on land planning (n.20/2000) introduces the concept of APEA, but without a clear definition. In a following regional act, the Directive on impact assessment, a list of requirements is added, still in general terms.
Now three Provinces have taken the responsibility of testing this approach for new APEAs. Guidelines (Modena) and Requirement Lists (Bologna) are under development, and energy is always one of the most important topics. The implementation of an APEA according to these indications requires higher investment costs, therefore imposing challenges to the regional, province and municipal authorities, which have to negotiate with the private companies developing (and selling) the areas.
The Operational programme 2007-2014 is in advanced state of preparation. The Department has made already public presentations of the main strategic lines. SEIPLED can support the policy for enterprise innovation and environmental performance improvement.

Barriers

The main obstacle to realise the objective is actually the contrast between the political will of the public administrations, aimed at a better environmental protection and limited use of resources, and the interest of the developers, which have the concern of obtaining competitive prices for selling the realised factories in the market.
This difficult negotiation between public and private interests requires a detailed work, connecting the stakeholders of at least the three sample areas, the policy makers and the local authorities. This work required the EIE support, to overcome the local bureaucratic limitations, and will have an important EU impact as the result has a very general interest. The SEIPLED partners at the kick-off meeting declared all their strong interest in the Ecuba results, which will also be distributed to the external contacts of each partner during the project lifetime

Stakeholders

The Advisory Group includes functionaries at the different administrative levels, local stakeholders and representatives of the Structural Funds planning at regional and province level.

Members of advisory group:

Stakeholders	Competences
Emilia- Romagna Region, Dept. of Productive Activities, Operational Programme Emilia-Romagna office Mrs. L. Rossi	Responsible body for Structural Funds.
Mr. Silvano Bertini, Productive Activities Dept. of Emilia-Romagna Region.	Responsible of the service Economic Development policies
Mr. Gabriele Bollini, Province of Bologna, Department of Environment	Responsible for the implementation of the APEA concept in Bologna Province.
Mr. Andrea Casagrande, President of	Organisation in charge for the development of new

the Modena Consortium for Industrial Areas.	productive areas in Modena Province.
Mrs. Caterina Brancaleoni, Director of SIPRO, the Development Agency of Ferrara	Organisation in charge for the development of new productive areas in Ferrara Province.
Mrs. Pamela Meier, Bologna Province, Councillor for Productive Activities	Political responsible for Bologna Province policies for enterprises.
Mr. Eriuccio Nora, Director of the Planning Dept. Modena Province	Department in charge for the revision of the land planning policy in Modena Province.
Representative of the Industrial Association (Unione Industriali) of Modena.	To be identified
Mr. Spataro, Representative of the Energy sector of the Craft Industry Association (CNA) in Bologna.	CNA is the largest local organisation of craft industries.
Representative of the worker's Union in Bologna	To be identified

Planning steps

The planning phase of the APEA package development interacts with some actions already included in other programmes.

Phase 1: identifying the requirements
The Regional Development Agency ERVET, under contract from the regional administration, has produced a comprehensive document on the situation of the Emilia-Romagna regional industry, in view of the environmental sustainability of its activities. The document lists 53 criteria for environmental sustainability which should be applied in APEAs.
The Environment Department of the Bologna Province, with the external support of ECUBA, has been drafting a set of format sheets, where the individual requirements for sustainable design of APEA is clarified in terms of priority, type of application (urban planning, building construction, process control,…), objective, action definition, performance requirements and additional notes.
This work regards the planning of new APEAs, but a similar exercise is planned, in collaboration with ERVET, for existing productive areas, to transform them in APEAs.
Energy is considered in one of these formats, including energy supply, energy consumption in building heating, cooling and Air conditioning, energy in the industrial processes, microclimate improvement, renewable sources and lighting.
The SEIPLED work will consist in a review and adaptation of the energy part of the Bologna Province formats, to make it suitable for a more general application in the whole EU territory.

Phase 2: guidelines

The Consortium for Productive Areas in Modena has committed to Ecuba the development of guidelines for the sustainable planning of new APEAs in their province. This document affords energy aspects in details, particularly the planning of a sustainable energy supply.
The Consortium SIPRO, provincial development agency of Ferrara, is involved in an INTERREG 3C project (Enercy Regio), with a small action related to the use of biomass in the energy supply of industrial areas. ECUBA is also involved in the same project with an action with the Modena Consortium, exchanging experiences on energy models for SMEs.
The SEIPLED project will complete the energy part of the guidelines, generalising its applicability.

Phase 3: pilot planning
The Bologna Province has committed to ECUBA the development of an environmental plan for the APEA of Ponte Rizzoli (near Ozzano Emilia), working in cooperation with the planning consulting TECNICOOP, operating under contract of the Ozzano Emilia Municipality.
This activity co-finances the SEIPLED project, allowing the production of the final output.

Expected activities

1st. Period (January – July 2006)
The APEA requirements for the energy aspect, proposed by the Bologna Province, are discussed and agreed.
An energy supply scheme, based on a district heating system, fed by a CHP unit, a biomass boiler and high efficiency gas boilers, is planned for the pilot area of Ponte Rizzoli, in cooperation with Tecnicoop. The scheme is developed in accordance with the Bologna Province requirements.
The Guidelines developed by ECUBA for the Modena Consortium for Productive Areas are finally approved. The energy section is revised, to be used in the SEIPLED project.
The participants in the Advisory Committee are officially appointed. The first meeting is planned for May-June 2006; the agenda includes the approval of requirements and guidelines for energy.
The reactions of the SEIPLED partners is received at the project meeting in Kaunas.

2nd. Period (July - December 2006)
A revision of Guidelines and Requirements for energy in APEA is operated, based on the suggestions of the Advisory Committee. The documents are translated in English and placed in the website. Reactions are asked to all the external partners.
The planning of Ponte Rizzoli is presented as pilot case. As the appointment of the area manager is expected in this period, the energy-package will be submitted to him and discussed. The plan of Ponte Rizzoli is economically assessed with some private operators.
The Advisory Committee meeting on September-October 2006 discusses the pilot case.
The third SEIPLED project meeting also discusses the pilot plan.

3rd. Period (January – June 2007)
A set of meetings with the external partners is organised. Their reaction to the produced APEA energy-package is received and possible replication opportunities discussed.
The third Advisory Group meeting, on March-April 2007, will afford the regional dissemination of the APEA concept, the availability of regional resources for the transformation of existing productive areas in APEAs and the support to single companies located in APEAs for the implementation of energy saving measures.

4th. Period (July - December 2007)

An Environmental Strategic Assessment is performed, according to the regional procedure called "VALSAT".
The dissemination activity is performed starting after the project meeting in Thessaloniki and concluded in the project meeting in Sophia. The APEA energy-package is presented in the regional workshop. The regional workshop, prepared by the fourth Advisory Group meeting, gives opportunity for a wider discussion on the APEA energy-package at regional level. Expected date October – November 2007.

EC - EIE Programme - SEIPLED Project

FIRST REPORT

"WP 2: METHODOLOGICAL DEVELOPMENT AND TOOLS"

Certificate for the energy performance of industrial economy

1. Local approach
2. Local conditions
3. Barriers
4. Stakeholders
5. Planning steps
6. Expected activities

Abstract of the Project

The SEIPLED general objective is to demonstrate that sustainable energy investment projects can have a positive local economic development impact. The partners will: i) demonstrate the viability of integrated programmes, where the sustainable energy dimension reinforces local development aspects; ii) transfer knowledge to all EU local energy agencies and involve at least 64 external already active contacts, most of them in new MS. The project activity will start with the definition of the local strategy, selection of the financial tools, and integration of proposals in the local economic development plans. This activity will involve a local advisory group, which will express opinion, give advice and contribute to the proposed project plans. The planning phase will provide project plans, to be disseminated through the project website and the active contacts, kept regularly informed during all project steps. A Strategic Environmental Assessment will also be performed.

WP2 Methodological Development and Tools
D01.1 Reports on Methodological Development Approach (RMA).
Objective:
The RMA wants to photograph the state of the art of each region by analysing the local approach in matters of energy consumption in general, energy behaviour in relation to the specific case study each partner presents to develop, analysing the local socio-economic conditions, identify funding measures and identify possible barriers that slow down the procedures in obtaining them. A case study (project) plan takes in consideration all information found and will be developed in relation to these results.

Role and relevance for project:
Establishing a socio-economic picture of the local/national situation in relation to the proposed case study for development of sustainable energy project.

Role and relevance for targeted readers:
Raise awareness of viability of local development through sustainable energy project.

Target groups:
Energy Agencies, Development Agencies, Public Bodies, SME's.

Glossary of abbreviations

CHP	Combined heat and power
ERDF	European Regional Development Fund
GDP	Gross Domestic Product
KfW	Reconstruction Loan Corporation (Germany)
OP	Operational Programme
R & D	Research & Development
RES	Renewable energy sources
SAB	Saxon Development Bank
SEA	Strategic Environmental Assessment
SF	Structural Funds
SME	Small and medium sized enterprises

Local approach

Please describe in about half a page the objectives, methodology and expected results of the planning exercise you have proposed in your region.

Objectives:
The local project is primarily aimed at introducing the Saxon certificate for energy performance in industrial sector focused on small and medium sized enterprises (SME) and resulted from the thereby elaborated measure plan, at implementing energy investments and measures with support of Structural Funds (SF). Incentive systems are created by combining the energy certificate with other supporting schemes for regional economic development. In addition, staff of SME and the Chambers/associations is qualified as energy efficiency managers in order to support decision-making processes for energy investments. In general, tapping energy savings potential through energy investments improves the competitiveness of Saxon industry and enhances the attractiveness of business location of Saxony.

Methodology:
Therefore, it is firstly necessary to contribute strategically to the programming of the next SF period (2007-2013). The priorities of the different policies (Operational Programme, European Programme Planning Documents, Regional Development Plan, Saxon energy programme, Saxon Climate Protection Programme) and financial aids in terms of small and medium scale business and energy promotion have to be evaluated. Based on these results, petitions for guidelines and planning documents can be made at a later stage of the SEIPLED project which accomplish the Operational Programme (OP) in order to advance the realisation of the proposed local project. These activities are strongly supported by the local advisory group in which all relevant stakeholders are involved. The basic principles for the certificate for energy performance of the industrial sector (model of indicators, model of classification of enterprises, catalogue of measures to improve the energy efficiency of enterprises, values of investments, energy and cost savings achieved, effects of CO2 reduction, etc.) have already been elaborated and are tested at the moment. Starting from this knowledge and the results of the evaluation of policy tools the planning exercise of the local project is then tackled. The supporting schemes for the introduction of the certificate for energy performance of small and medium sized enterprises and for the implementation of energy investments are worked out including guidelines, selection criteria, evaluation criteria, administrative procedures, how to approach the potential applicants, indicators of effectiveness, budget planning, etc. In addition, existing incentive systems in the range of business and energy/environment are collected and assessed. From this follows which incentive systems may be applied in connection with business development and enterprises that are certified and have undertaken enormous energy investments. Complementarily, a concept is worked out to qualify staff of SME and Chambers/associations as energy efficiency managers due to the experience that there is still a lack of skilled employees who initiate energy investments in SME and use the availability of different support programmes.

Overall results:
It is expected that the potential of the Saxon energy certificate for enterprises to activate energy investments is enormous and the innovative model approach allows combining energy efficiency in enterprises with financial aids for promotion of investment and business development. In addition, investments in improving energy efficiency, submission of energy projects to SF or other regional funding, safeguarding and increasing employment and location of enterprises in Saxony are

expected as well. The action will demonstrate that this approach has an enormous replication potential, in already industrialised areas and in areas of new- or re-industrialisation, as it motivates internally the enterprises to invest specifically on energy, avoiding competition with other forms of industrial investment, and results in better access to support programmes.
In general, these results contribute effectively to regional economic development, increase economic competitiveness und securing the economic future of the region.

Local conditions

Describe the local context, in terms of socio-economic conditions, of energy and environmental situation and of available human and financial resources, in relation with the topic of your plan.
Demography and labour market
Saxony has a population of 4.278.086 inhabitants. In 2005, its regional GDP per capita is 20.058,03 € (national GDP/capita: about 27.218 €). In recent years, economic development in Saxony has been characterised by economic growth and a comparatively modest decline in employment (compared to the other East German Länder). Nonetheless, the unemployment rate of around 20 percent (women: 19,8 %, men: 20,3 %).remains a core problem for the Land´s development. An important variable for future development is productivity, where Saxony is even below the average of the East German Länder. However, this is the flip side of the comparatively modest reduction in employment.
Closely connected with labour market, the demographic change has to be considered as another exigent challenge. Saxony lost about 14% of its inhabitants between 1989 and 2003, mainly well-educated people below aged forty. A further decline of population can be expected in future.

Regional disparities
Regional patterns of development show more or less stable groups of winners and losers. Regional disparities have been increased. The border regions in eastern Saxony are mainly in danger of being continuously left behind. It forces on the development of different visions for the development of the centres on the one hand and the periphery on the other hand. There are some centres with diversified economic structures which constantly grow, e.g. Leipzig, Dresden, Chemnitz/Zwickau. Here, the ERDF funding is regionally highly concentrated: More than a quarter of ERDF funding goes to these three urban centres. Subsidies to enterprises have the highest concentration, whilst environmental measures have the lowest regional concentration.

Errore. Non si possono creare oggetti dalla modifica di codici di campo.
Fig. 1: Map of spatial structure, Regional Development Plan Saxony 2003

Competitiveness and Innovation
The structure in industry and trade is characterized by small and medium sized enterprises, mostly in the modern sector, manufacturing industry (vehicle construction, foods, machines, metal manufacture, precision mechanics) and services related to industry. The dynamic of local industrial grow is about 3,8 %.
Regarding Structural Funds interventions, SME receive the highest share of subsidies (23%).
Development with regard to R&D remains unsatisfactory. Although Saxony is still the state with the highest potential in eastern Germany, the dynamic of the growth of R&D input is higher in other Länder. The bottleneck is not so much on the supply side of R&D knowledge, where Saxony is well equipped with research institutions, amongst others in the field of energy research, as in the transfer to the economic sector.

In general, with regard to financial resources public sector (municipal as well as state level) disposes of declining financial power, whilst the economic situation remains weak as expected for the future.

Energy and environmental situation:
State´s government and Saxon industry concluded a voluntary agreement in 1998 which has been aimed at releasing the environment, making more attractive the business location of Saxony and leading to ease administrative procedures.
The biggest investments in environmental infrastructure financed by SF intervention in this field have been made in water supply, sewage and refurbishment of landfill sites in recent years. The minimum standard of public assistance in environmental infrastructure should have achieved at present.
Energy industry (brown coal mining) is a high-capacity element of the Saxon economic structure. Approximately 85% of electricity produced in Saxony comes from brown coal. Therefore, there exists a traditionally high-performance energy research infrastructure (resp. energy technologies) as well.
The share of end energy consumption of industry in total end energy consumption is actually about 19,5% und still below the average share in Germany (25,2%). This is due to the modern but also small sized industry in Saxony. There were an immense reduction of CO2 emissions after 1990 by reason of closure of old plants and decline of industrial production (7,4 Mio. t CO2 reduction or approx. 60% between 1990-1998). Meanwhile, the saving potential in industry has decreased in recent years (0,8 Mio. t CO2 reduction between 1998-2003).

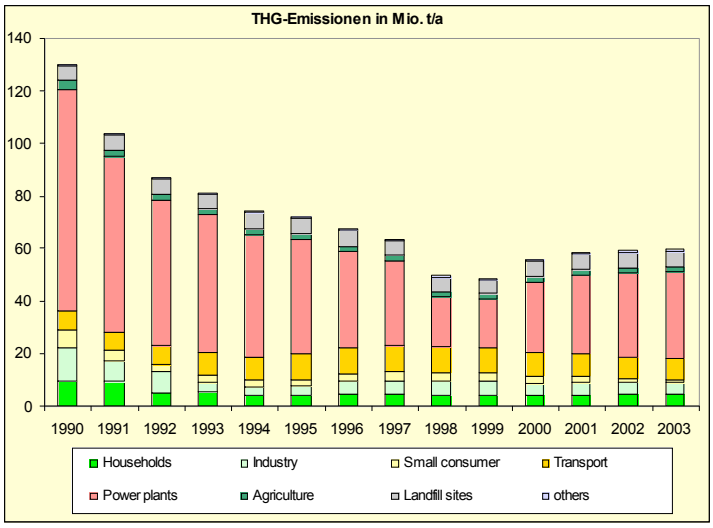


Fig. 2: Development of greenhouse gases emissions CO2, CH4 and N2O in Saxony 1990 until 2003 (in CO2-equivalents)
Despite a moderate energy intensity of Saxon industry the specific CO 2 emissions have increased again since 1999 due to new built power plants. In accordance to a study on behalf of the Saxon Ministry of Economy and Labour the energy consumption of the investigated manufacturing industries on an average is about 25% and the CO2 emissions about 75% higher than the respective German average.[1] And energy efficiency of Saxon industry and trade is about 13% below the German´s average.[2] According to another study of the Saxon Agency for Environment and Geology

[1] Riesner, W., FH Zittau/Görlitz, Vergleichende Untersuchung der Energieintensität des Umsatzes und der CO2 Emissionen für die Wirtschaftszweige des verarbeitenden Gewerbes Sachsens, Zittau 2000

[2] Staatsministerium für Wirtschaft und Arbeit: Energieprogramm Sachsen 2004, Leitlinien und Handlungsschwerpunkte, S. 14

the CO2 reduction potential tapped by increase in efficiency is estimated on 31% in Saxon industry and approx. 39% in Saxon trade. Thereof, 10% resp. 25% account for cross-sector technologies (lightening, heating and ventilation installations).[3]
Accordingly, due to
- obsolete production plants
- production sizes which do not work to fully capacity
- obsolete heating systems
- insufficient buildings of production plants
- high share of coal in the mix of combustibles
further energy and CO2 savings potentials in industrial sector can be tapped.

Therefore, the overall objectives determined in the regional development plan of 2003 are amongst others:
- overcoming the demographic change by initiating qualitative conversion processes and safeguarding work places;
- strengthening the centres as business locations
- improving the marketing for the business location Free State of Saxony as an attractive living and economic area
- endeavouring for climate protection
The Climate Protection Programme of 2001 contains the following measures in relation to the industrial sector:
1) Model projects to support Saxon enterprises in analysing and implementing energy efficient measures (energy and material flow management, development of the certificate for energy performance in industrial sector)
2) Information system about „Energy efficiency in industry“ and respective financial aids
3) Model project to collect energy consumption of specific institutions and benchmark them
4) Monitoring system for energy efficiency in Saxon economy
Several financial aid programmes are run by the Saxon Development Bank and the Saxon Agency for Environment and Geology in order to increase energy efficiency and the use of renewable energies in industry and trade. Here, the co-financing rates in Saxony are:
20% on biomass in combination with the installation of solarthermal plant
20% on biofuels
up to 15%, max. 225.00 € on biogas
30% on water-power plant

Barriers

Identify which are the main obstacles to the realisation of the envisaged objectives. Explain why a public contribution from regional funds is necessary, as the action could not be realised with local or private funds only.
Verify bureaucratic constraints, difficulty with credit from the banks, technological barriers, lack of information or data, week entrepreneurial skills, and any other element hindering the spontaneous evolution of your planned action.
The obstacles to realise the envisaged objectives are multifaceted. The overall aim to increase energy investments in industry to contribute to regional economic development as well as energy

[3] Duscha, M. u.a., Klimaschutzuntersuchungen im Freistaat Sachsen, Ermittlung und Bewertung der Minderungspotenziale klimarelevanter Gase sowie Darstellung umsetzbarer Maßnahmen zur Emissionsreduzierung, Heidelberg 1999

savings and use of renewable energies is often contradictory to other aims devised in the different policy documents and tools. This results among others from divergent interests and targets of the different ministries and associations involved in the programming.
In addition, there is still a lack of awareness by energy experts on the one hand and regional development experts and business developers on the other hand that sustainable energy investment and energy efficient measures contribute to regional economic development and location attractiveness and that these fields are closely linked. For this reason, a close collaboration in the advisory group from the very beginning of the project may help to overcome difficulties and find a joint approach to stimulate energy investments in SME through the introduction of the certificate for the energy performance in industrial sector and the creation of incentive schemes.
Especially at SME level, there is a lack of time and human resources qualified in energy issues. Despite a wide range of information material, trainings, seminars regarding possible measures, technologies and finance programmes aligned to energy efficiency and energy investments in SME there is still an information deficit by the respective target groups so that the knowledge and financing possibilities are scarcely used. One reason certainly is that numerous programmes and financial aids run by the Federal State and the Länder are often not harmonised and the management is distributed among several institutions. A competent contact person who gives advice about all relevant aids is mostly not available and concrete support in the implementation phase is not provided (from information to action). In consequence, the supporting and incentive schemes to be developed in connection with the certificate for energy performance must consider these obstacles.
The certificate for energy performance in SME is now tested in a model phase. Within the SEIPLED project, the transition from model test to market has to be carefully prepared. Particularly, regarding the incentive systems consensus has to be achieved and the technical and financial modalities have to be taken into account.
In conclusion, the low financial resources of SME and the Free State as well as the enduring difficult economic situation demand public contribution from Structural Funds to activate energy investments. Increasing energy costs diminish the competitiveness of SME and thus, solutions have to be provided.

Stakeholders

Which stakeholders you envisage to involve in your Advisory Committee? Why you select these ones? Which decision makers should be part of the process? Specify any other economic or social representative parts which may influence the realisation.

The setting up of a regional partnership between energy experts, economic and regional developers, enterprises and institutions responsible for Structural Funds and other supporting schemes is one approach of the SEIPLED project in order to overcome few of the above mentioned barriers.
The advisory group will agree on targets, exchange and discuss interim-results, manage the project development procedures and revise the eligibility of financial assistance, etc.. Regular meetings will be held lead-managed by the Saxon Ministry for Environment and Agriculture. Therefore, bodies entitled to plan and decide for funding (Structural and regional funds) are directly involved in the advisory group as well as the representatives of the target group SME.
Part of the advisory group has already been constituted several months ago in order to accompany the development of the certificate. It is now extended by actors who are important for the development of incentive systems and the promotion of the certificate on a bigger scale as well as those who are closely connected with Structural Funds.

Members of advisory group:

Stakeholders	Competences
Saxon Ministry of Environment and Agriculture	Principles of environmental, climate protection, forestall and agricultural policy Programme owner of several financial aid programmes co-financed by EDRF
Saxon Ministry of Economy and Labour	Responsible for economic development, regional and sectoral development, energy economy, energy supervision, technology promotion, transport Responsible body for Structural Funds
B.&S.U.	Programme manager of environmental programmes (incl. energy and climate protection) co-funded by the European Regional Development Funds Development of support schemes in the environmental and energy sector
Saxon Energy Efficiency Centre	Programme manager of the Saxon support programme "Immission control and climate protection" Responsible for the model project "Certificate for the energy performance of industrial sector"
Saxon Chamber of Industry and Commerce	Input for the supporting and incentive schemes Promotion of the certificate
Saxon Chamber of Crafts	Input for the supporting and incentive schemes Promotion of the certificate
Saxony Economic Development Corporation	Promotion of Saxony as an industrial/ commercial location Advice to potential investors on relocation projects from the idea to implementation Act as agent between Saxon enterprises and non-Saxon co-operation partners, between potential investors and the regions and municipalities of Saxony, between research and practical application Promotion of the certificate
Development Bank of Saxony	SAB is a stand-alone development bank, with no commercial banking activities and acts as the primary vehicle for delivery of regional, national and EU development programs in Saxony working closely together with Saxony's state government, banks as well as the KfW banking group. Input to financial aids with regard to financial and administrative procedures
Environmental Alliances Saxony	The alliances is a voluntary agreement between state government and Saxon economy represented by the Saxon Chamber of Industry and Commerce, the Chamber of Trade and other organisations that is dedicated to strengthen regional development while, at the same time, mitigate the environment Promotion of the certificate
Representation of Energy Advisors	Feedback from actors who advise the SMU in introducing the certificate for energy performance and in implementing measures

Planning steps

Define the planning phase of your action, starting with phases already developed and specifying all next steps, indicating motivation, timing, milestones, decisions to be assumed, documents to be produced and approved, agreements with operators or authorities, financing agreements, and so on.

1. Step (November 2005 – July 2006)
The starting point of the action is the elaborated certificate for energy performance in industrial sector focused on cross section technology. The basic principles for the certificate (indicators, classification of enterprises, catalogue of measures, values of investments, achieved results) have been worked out and are now tested in six companies. The evaluation results of this testing phase are the basis for the detailed development of the planned action and will be discussed in the advisory group as well. The planned action is motivated through the combination of the certificate for energy performance with supporting and incentive schemes for regional economic development (co-funded by Structural Funds) in order to enhance energy investments in SME.

2. Step (December 2005 – Mai 2006)
It is planned that the action will be realised with financial aid of Structural Funds. Thereof, this allows for an input for the programming phase of Operational Programme (2007 – 2013) at an early stage. In the column "Environment", the Saxon Ministry for Environment and Agriculture has claimed 56 million Euro so far which also contain measures for the industrial sector. The state government will take a decision about the priorities and allocation of funds until Mai 2006 and the respective departments involved in this project are still negotiating their budget allocations.

3. Step (April 2006)
An agreement among the members of the advisory group has to be achieved in April with regard to the specific contents of the project. In alignment with the Saxon Ministry for Environment and Agriculture a proposal was worked out as reflected in this report. The main challenge is to bring about a mutual consent between energy experts (Ministry of Environment and Agriculture, Energy Efficiency Centre) and the economic development experts (Ministry for Economy and Labour, Chambers) about the key aspects of the action.

4. Step (April – July 2006)
The legislative tools, administrative procedures and financial aids disposable in Saxony regarding sustainable energy issues in the industrial sector relating to local development and other sector policies are identified and analysed as status quo report. The focus should especially lie on the interactions between the different tools, procedures and obstacles which have appeared during the implementation phase. The results are recorded in the national policy report as status quo report. From it, consequences can be drawn with regard to the further development of the planned action.

5. Step (September 2006 – July 2007)
On the basis of these previous steps the action will be concretised by developing new approaches to enhance economic regional development through energy investments, e.g.:
a. Support programmes for the introduction of the certificate for energy performance of small and medium sized enterprises and for the implementation of thereby identified measures are worked out including guidelines, selection criteria, evaluation criteria, administrative procedures, how to approach and support potential applicants, application forms, indicators resp. effects of the programmes, budget planning, etc. These programmes shall be supported by ERDF.
b. In addition, existing incentive systems in the range of business are collected and assessed. From this follows which incentive system for the promotion of investments has to be worked out and may

be applied in connection with enterprises that are certified, have undertaken enormous energy investments and efforts to increase energy efficiency (e.g. bonus system, financial support differentiated to energy efficiency categories, etc.). In general, the promotion of investments shall be co-financed by ERDF.
c. The support and incentive systems are accompanied with a qualification measure targeted to staff of SME, Chambers and associations to enable them to give advice regarding possible energy investments and energy efficiency measures. The qualification shall be financed by the European Social Fund. Here, preparatory work has to be done in terms of determining the target groups, sphere of activities of the staff, content of the qualification, budget, etc.
The elaborated schemes have to be approved by the advisory group and then, incorporated in the European Programme Planning Documents and the implementation guidelines of the Operational Programme. Additionally, a set of indicators for the economic, social and environmental effects of the action will be compiled.

6. Step (November 2007)
The results of the local action will be presented to the target group and promoted by the interest groups on a workshop with the view of the coming Structural Funds period (2007-2013) and state-aided energy investments for SME. The combination of state-aided investments and receiving the certificate is one motivation for the application of RES and the optimisation of cross-sector technologies related to energy efficiency. Finally, cost saving and therefore criteria of competitiveness is the strongest motivation for SME.

In general, the local project is referred to the following directives among others: Directive promotion of electricity produced from RES in internal market, Directive energy performance of buildings, Directive eco-design of energy-using products. At national level it makes reference to the Renewable Energy Law, Decree on energy savings, Law CHP.

Expected activities

Specify in a schematic way the expected activities at local/regional level, from January 2006 to the end of the project.
Indicate individuals and organisations involved in the activity, how and when you will select external consultants and subcontracts, expected deliverables foreseen in the project list.
Note: the expected activities differ from the planning steps of previous point 5, as the activities are those ones to be charged on the EIE project, while the planning steps include actions performed by other people/organisations, not necessarily part of the EIE project. Moreover the description in item 5 should be more in logical sequence, here in organisational way.

Work package 3 (April – July 2006)
After defining the activities how to realise the planned action in this report and arranging the project modalities at regional level with the Energy Efficiency Centre and the Ministry for Environment and Agriculture a template for analysing the existing national and regional legislative tools, the regional administrative procedures and financial aids related to regional economic development based on energy investments will be drawn up.
In Saxony, B.&S.U. will analyse for this purpose the following documents among others. Input through documents and expert knowledge and experiences will be provided by the ministries and the implementing bodies of financial aid programmes.
a. National and regional legislative tools: Energy Saving Law, Renewable Energies Law, etc.
b. Regional administrative procedures: Operational Programme 2000-2006, actualised mid-term evaluation of the Operational Programme, Regional Development Plan Saxony 2003, Energy

Programme Saxony 2004, Saxon Climate Protection Programme 2001, Progress report on Climate Protection Programme 2005
c. Financial aids: Joint task between Federal State and Länder, Immission and Climate protection support programme, promotion of investments for SME run by Saxon Development Bank, etc.
This analysis gives information about strengths and weaknesses of policy tools and aid regimes, interaction between sector policies and specifies the obstacles focused on energy investments in the industrial sector. The results have definitely to be considered in the planning process of the local action.
In addition, B.&S.U. will contribute to the introduction for the common report on policies and aid regime in order to approach the way of posing the problem in general.
Deliverables:
D 3: Contribution to report on guidelines on policies and aid regimes in English
D 4: National policy report in German

Work package 4 (Four meetings)
The advisory group will be kept informed about the main procedures and results of the SEIPLED project which are discussed and adopted in the meetings. It will be responsible for steering and promoting the local project of the certificate for energy performance in industry and related support and incentive regimes. The advisory group consists of an existing committee that accompanies the development of the certificate and has met twice up to now. This group will be enlarged by the representative of Environmental Alliances Saxony, Saxon Development Bank and the Economic Development Corporation. The meetings are hosted and organised by the Energy Efficiency Centre as subordinated body of the Saxon Ministry for Environment and Agriculture. B.&S.U. prepares the meetings as regards contents and the minutes.
The preliminary time and work table for the meetings is as follows:
1st meeting (April 2006): Status of development phase of the certificate for energy performance, presentation of the SEIPLED project and the stage of local project planning, agreement on specific contents of the local action
2nd meeting (September 2006): Results from model test of the certificate for energy performance, discussion of the report about policy tools and aid regimes based on energy investments in industry and conclusions, preparation of the activities related to the local project
3rd meeting (March 2007): Presentation of interim-results and achievement of consensus about the support and incentives schemes as well as the qualification measure worked out, professional input of the advisory group members are given
4th meeting (October 2007): Presentation of results and achievement of final consensus about the support and incentives schemes as well as the qualification measure worked out, preparation of the regional workshop, discussion on sustainability assessment
Deliverable:
D 5: 4 minutes of advisory group meetings in German and English

WP 5 (September 2006 – July 2007)
Based on the results of the model phase of the certificate for energy performance in six enterprises of different branches the following activities will be carried out by B.&S.U. in close collaboration with the respective ministries, the Energy Efficiency Centre and the associations (cp. 5, step 5).
Deliverable:
D 6: Dossier with reports, guidelines, application forms, budgets, criteria lists, indicators, contents of qualification measure in German; Dossier summary in English

WP 6 (July – November 2007)

B.&S.U. will evaluate the economic, environmental and social sustainability of the technical and organisational solutions planned in the previous work packages using the Strategic Environmental Assessment (SEA) approach which will be processed by the respective work package leader.
Deliverable:
D 7: Report on sustainability assessment in English

WP 7 (November 2007)
Besides contributions to the specific dissemination activities (website, poster, newsletter, etc.) the results of the local action will be presented to the target group and promoted by the interest groups on a workshop at the end of the project with the view of the coming Structural Funds period (2007-2013) and state-aided energy investments for SME. B.&S.U. will prepare the workshop regards contents whereas the Energy Efficiency Centre will undertake the task of organising it and addressing the target groups. At the workshop, there will be a good opportunity to attract the first small and medium sized enterprises which are interested in drawing up the certificate for energy performance and consequently, invest in energy technologies and processes. In addition, the target group can be informed about new incentive schemes in promotion of investment in order to enhance regional economic development.
Deliverable:
D 8: Documents of regional workshop, contribution to dissemination activities

Annex 1: Time schedule local project Saxony

	Jan 06						Jul 06							Jan 07							Jul 07			
Months	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Project management																								
Project planning																								
Analysis policy tools and aid regimes																								
Advisory Group meetings																								
Elaborating support and incentive schemes																								
Sustainability assessment																								
Regional workshop																								
Dissemination activities																								

EAJ

EC - EIE Programme - SEIPLED Project

“WP 2: METHODOLOGICAL DEVELOPMENT AND TOOLS”

TOPICS

Local approach
Local conditions
Barriers
Stakeholders
Planning steps
Expected activities

Glossary of abbreviations

EAJ	Energieagentur Obersteiermark (Energy Agency of Upper Styria)
LEV	Landesenergieverein (Energy Agency of the Province of Styria)
NOEST	Network of Eco Energy Styria
SME	Small and medium enterprises
RUE	rational use of energy
RES	renewable energy sources
R&D	research and development
PPP	public-private-partnership
GDP	Gross Domestic Product
CHP	combined head and power
NUTS	code for referencing the administrative division of countries in the EU

1. Local approach

The objective of SEIPLED in the target Region in Austria/Styria is to establish a sustainable process for the creation of a Region, which get independent from fossil fuels, based on the use of the available renewable energy sources. Substitution of fossil fuels is the main aim, but also to increase the energy efficiency by the customers.

The methodology consists of different steps:
- Analysis of the actual situation in the energy supply (total consumption and shares of different energy sources)
- Analysis of the available renewable energy resources
- Workshops with the relevant actors in the energy field, and related caretakers and multipliers, with the aim to define the relevant and important fields and actions
- Definition of pilot projects
- Development of pilot projects and case studies

Expected results are:
- Establishment of a network of the local energy actors
- Commitment of the local actors on a common regional strategy
- Case and feasibility studies on demonstration projects
- Analysis of success factors and barriers for this process
- A guideline for the implementation of a similar strategy in other regions

2. Local conditions

Demography and economy[4]

The target area is situated in the mountain area in northern part of Styria. The area is covered 60 % by forests. The area covers the 3 districts Judenburg, Knittelfeld and Murau, which represents a NUTS 3 area. They are situated along the Mur-valley. The Mur valley can be divided in two parts: the central part between the cities Judenburg and Knittelfeld, with steel and high tech industry and agriculture, and side valleys which are very rural. These have only agriculture and tourism. The altitude range of this area goes from 700 m above the see level up to the main ridge of the alps to 2.500 m in the northern part of the target area.

On the 1st of Jan 2005, there have been 107.492 inhabitants living in this area. About 50.000 people lives in the central area, the other in the rural towns.

The GDP per capita in the region was € 23.200, compared to the national GDP per capita of € 27.300 in 2002.

[4] Statistical data based on the statistcal department of the province of Styria; http://www.verwaltung.steiermark.at/cms/ziel/97530/

The unemployment rate is at 6 %, which is above the average of the province Styria.

Main objectives in regional development are wood in relation to economy, tourism and culture. One important part of this is renewable energy sources. This sector has EU-wide the highest grow-rate estimated for the next decade. Also the share of agriculture are significant above the average. But farmers are looking for alternatives and additional income, in case of the changing structures in EU and worldwide. Regarding to this reasons, the core economies in regional development are decided as the following:

- agriculture, forestry and related services
- manufacture of wood and wood-products
- manufacture of food and beverages
- electricity, gas and water supply
- construction sector

The renewable energy sector has a strong relationship to most sectors above, and plays a main role in regional development

EAJ developed the project "Energievision Murau": the aim is to get independent from fossil energy and prepare 100% energy for heating and electricity from renewable energy sources. This objective relays on the available natural resources for renewable energy. The resources are: Biomass from forests and as a secondary raw material from the timber industry, small hydropower from a couple of small rivers, wind on the mountain side, a lot of sun (there is very less fog in this region), and geothermal energy.

Most important renewable forms for heating are:[5]
- Pellet and wood chip heating
- Small scale biomass district heating (micro nets) for a couple of houses, industrial areas or larger single buildings
- Biomass district heating (up to 10 MW thermal power), in total 48 heating stations, in sum 58 MW
- Solar thermal systems (up to 600 square meters)

for electricity production from RES there exists already:[6]
- The highest windpark of Europe, 22 MW, 13 windmills at 1.900 m elevation on an mountain ridge
- The first biogas system on a military base and airport, 500 kWel, 550 kWth, based on energy crops
- Biomass CHP:
  - 700 kWel steam turbine in a biomass district heating
  - 1.500 kWel ORC (Organic Rankin Cycle) turbine on an industrial area for wood processing
- 97 small hydro power plants with a total installed power of 64,8 MW

Human resources: in the project “Energievision Murau” EAJ filtered out the important actors in the energy sector in the region, and brought them together by the methodology “future conference”. Members in this group are entrepreneurs and employees of SME’s like installers, construction

[5] Data provided by the Landesenergieverein LEV, supplemented by EAJ

[6] Data research by EAJ

sector, utilities, energy companies, caretakers like politicians, municipalities, farmers, teacher, NGO's. First co-operations could be established by a moderated process by the energy agency EAJ.

So, renewable energy sources are very important for regional development in the target Region. Renewables are an important feature in regional development, and in cooperation's between organizations and in setting up projects. Aims are to implement value added chains between forestry, wood industry and the energy sector, to create regional income and employment, and to fulfil the aims of decentralized energy supply and climate protection of the EC.

Further, we want to enforce the progress, to establish business models (contracting, PPP) for the implementation of renewables, to improve the logistics of biomass woodchips from producers to customers, feasibility studies for important regional pilot actions and projects. Also the process should be spread out over the NUTS 3 level and to other regions in Austria and the EC.

3. Barriers

We expect the main obstacles in convincing people of the necessity of different actions and technologies. For different technologies, like pellets and wood chips-heating or solar collectors for hot water preparation, the awareness of people and customers is quit high.

Especially the involvement of stakeholders and local and regional politicians is very important. The can assist the region in strengthen the economy on focusing on the available natural resources and potential. They can influence the laws and subsidy programs and also structural funds, which is important for future programming and the development in the regions.

For the implementation of new technologies, like small scale biomass-CHP, or innovative business models and PPP-models, a lot of information and awareness creation is needed. This means, that pilot projects have to be developed, documented and visualized as good practice examples and disseminated to the relevant actors, multipliers and customers.

Also the benefit for the Region and the different actors and the customers should be made available. This means the documentation of value added chains, which can create benefits in steps, regional economic cycles, and so on.

For the creation of such pilot actions it is necessary to co-finance the development of the innovative pilot projects, and also the accompaniment of the strategic process by structural funds. For new and innovative projects and new business models there will be a higher risk for the investor, and in most cases the costs in these projects are higher than in ordinary standard projects. Banks also do not like to spend money for not proven technologies. Subsidies from structural funds can lower the risk for the investors in this cases, this will help to increase the number of good practice examples. This means to show that the projects are working, and you can optimize the process for lowering the costs for future projects.

4. Stakeholders

For the Advisory Committee we selected a couple of representatives of the most relevant groups of actors in the energy field and responsible persons in regional development. These stakeholders and decision makers are very important for the establishment of the process, and the implementation of the project. They are:

Energieagentur Obersteiermark (energy agency, SEIPLED project management for AT)
DI Josef Bärnthaler

Regionalmanagement Obersteiermark West (regional development agency)
MMag. Arnulf Hasler

SFG-Obersteiermarkagentur (service association for SME's)
Mag. Ulf Gratzer

Holzwelt Murau (regional development agency, LEADER+)
Mag. Alfred Baltzer

Bioregion Murau/Landwirtschaftskammer (development in agricultures / chamber of agricultures)
Ing. Harald Kraxner

Naturinstallateur Zeiringer GmbH (installer, specialized in biomass and solar thermal systems; private SME)
Heide Zeiringer

Stadtgemeinde Murau (municipality, mayor; in privat he is the owner of a biomass CHP district heating and a small hydro power plant (SME))
Bgm. Herbert Bacher

Wirtschaftskammer Murau (chamber of Commerce)
KO Anton Schwaiger

The process will be also influenced by all companies and actors in the construction sector, energy sector, providers of raw material for energy production, experience of customers, multipliers and caretaker in the public sector, public administration, banks and NGO's.

A list of companies and persons which have an influence to successful installations of projects have been created and will be attached to this document.

5. Planning steps

The different phases of the project are:

1. Project management for the region
2. Involvement of stakeholders and actors, establishment of the advisory committee

3. Moderation and accompaniment of thematic workshops
4. Definition of concrete project ideas, development of pilot projects, feasibility studies and business models
5. Reflection and evaluation of the process, definition of suggestions and guidelines for other regions

6. Expected activities

The activities during the different phases in the project are:

1. Project management for the region
Project management, research on regional basis data for energy use, consumption and production, coordination of workgroups, public relations.

2. Involvement of stakeholders and actors, establishment of the advisory committee
Organisation of meetings of the advisory committee, planning and reflection of the main process, meetings of the project team

3. Moderation and accompaniment of thematic workgroups
Facilitation of working groups, technical inputs and advice for the workgroups.
Planning, invitation, implementation and documentation of the meetings
Development of new business models.

4. Definition of concrete project ideas, development of pilot projects, feasibility studies and business models
Definition of pilot projects. Conception, feasibility studies, definition of interfaces between actors and technologies, execution plans, creation of basis of decisions, investment plans, financing models including subsidies be structural funds

5. Reflection and evaluation of the process, definition of suggestions and guidelines for other region creation of a model and guidelines, based on the experiences and lessons learned in the project, for dissemination to other regions.

Renewable Energy Office of Cornwall

EC - EIE Programme - SEIPLED Project

"WP 2: METHODOLOGICAL DEVELOPMENT AND TOOLS"

TOPICS

Local approach
Local conditions
Barriers
Stakeholders
Planning steps
Expected activities

Glossary of abbreviations

CHP	Combined heat and power
GDP	Gross Domestic Product
R.E	Renewable energy sources
SW	South West
SME	Small and medium sized enterprises

Cornwall situation

1. Local approach

Objectives

The project aims to develop three interlocking initiatives to significantly speed up the introduction of renewable energy installations in Cornish industrial buildings, through
1. Helping develop planning guidelines in all local planning authorities for R.E in all new industrial buildings
2. Developing a grant scheme to assist with the capital costs of installation
3. Development of training courses for R.E installers

Methodology

Task 1: partners will work with the local authorities and other partners to develop their planning policies including R.E installations on/in all new industrial buildings. This will involve meetings, preparation of drafts and working with planning and development control officers and some council members to help the process through.
Task 2 will involve working with the developers, in Cornwall Enterprise, of the new Convergence grant programme to ensure that the aims of this proposed grant scheme are covered in the new overall programme. We will prepare a development scheme for the new programme, and then go on to prepare and submit an application for the new grant scheme to help the installation costs of R.E on all new industrial buildings in Cornwall.
Task 3 will involve working with the local further education college to develop suitable courses within their building trades department.

Expected results

The deliverables are:
task 1: report on the polices of the local councils adopted following our intervention
task 2: application for a grant scheme under the new Convergence programme
task 3: report on the courses under development in local College

2 Local conditions

Cornwall is a poor area with low GDP (65% of UK average), enabling it to gain a new EU Convergence grant. The £500m grant programme will have sustainable energy as one of its main themes, providing an ideal opportunity to set up a grant scheme to encourage R.E industrial building integration.

Energy costs Cornwall around £600 million a year (euro 870 million), nearly all of which is imported, amounting to 16% of the local economic output. There is a high proportion of small companies in the industrial sector and because the local area is predominantly rural and agricultural, the major part of the local manufacturing industry is food processing, which has high energy needs. Cornwall is renowned for its beautiful environment, its beaches and moors land, and is surrounded by sea on three sides, restricting access to markets for industry.
At present most new industrial buildings are grant aided, so the option to install R.E with grant aid is a natural extension of the present programme.

The available human resources are two or three people who will carry out most of the work under the programme, calling in other expertise when needed by the programme.

The project partners will also be working with public sector agencies to ensure the completion of the tasks in the programme. We aim to increase the financial resources to carry out the programme through grant applications to several other bodies.

3 Barriers

3.1 Obstacles

There are several obstacles to the installation of renewable energy in industrial buildings in Cornwall. The main reasons it is not happening now are:-
Planning problems
Cost of installations
Lack of awareness of the issues for SMEs
Lack of capital in SMEs
The market in industrial buildings is weak in Cornwall, as the cost of a new building is already higher than the market value. The demand for new buildings is restricted by lack of available land and low numbers of businesses wishing to relocate to the area, which makes the risk for speculative builders too high. The regional development agency is therefore involved in grant aiding nearly 80% of new industrial build in the area.
Local R.E industry weak and fragmented, often engaged mainly in survival rather than business development

The main obstacles to the implementation of the project objectives relate in part to the obstacles noted above. In addition the issues to be overcome are:-
Lack of awareness of planning authorities of the issues
Bureaucratic inertia in local authorities
Difficulties in raising the issues into the local agenda for public agencies
Bureaucratic in-fighting between some agencies
Lack of interest from the regional agency in Cornish specific solutions

3.2 overcoming obstacles
We aim to overcome these difficulties by:-
Working with the planners to reduce their lack of understanding and increase their welcoming of SMEs wanting to install R.E
Working with local SMEs through REOC, one of the project partners to encourage the business cluster development

Working with all the local and regional agencies to educate them on the value of the proposed approach and its benefits for the local economy and business development.

3.3 reason for public funds

The reason a contribution from public funds is necessary to assist this project to implementation is related to the obstacles noted above. Without public sector external funding for activities dedicated to this project there would be too many difficulties for the project to be undertaken.

3.4 issues for regional functionaries

We aim to work with the regional agencies at Cornish and SW England, regional level, to understand their problems with implementing higher levels of renewable energy installation. We will then work up their understanding of the needs for this activity and show examples from other areas to show how it can be done. We will then suggest ways to develop best practice from elsewhere into the local Cornish context to the benefit of the agencies and the region.

4 Stakeholders

The Advisory Committee should consist of most of the local public agencies with an interest in economic development, planning and industry in Cornwall. This must include the regional agencies, from the wider region including Government Office and regional economic development agencies. The envisaged membership is:-

Cornwall Enterprise
Renewable Energy Office for Cornwall
South West Regional Development Agency
English Partnerships: Cornwall Office

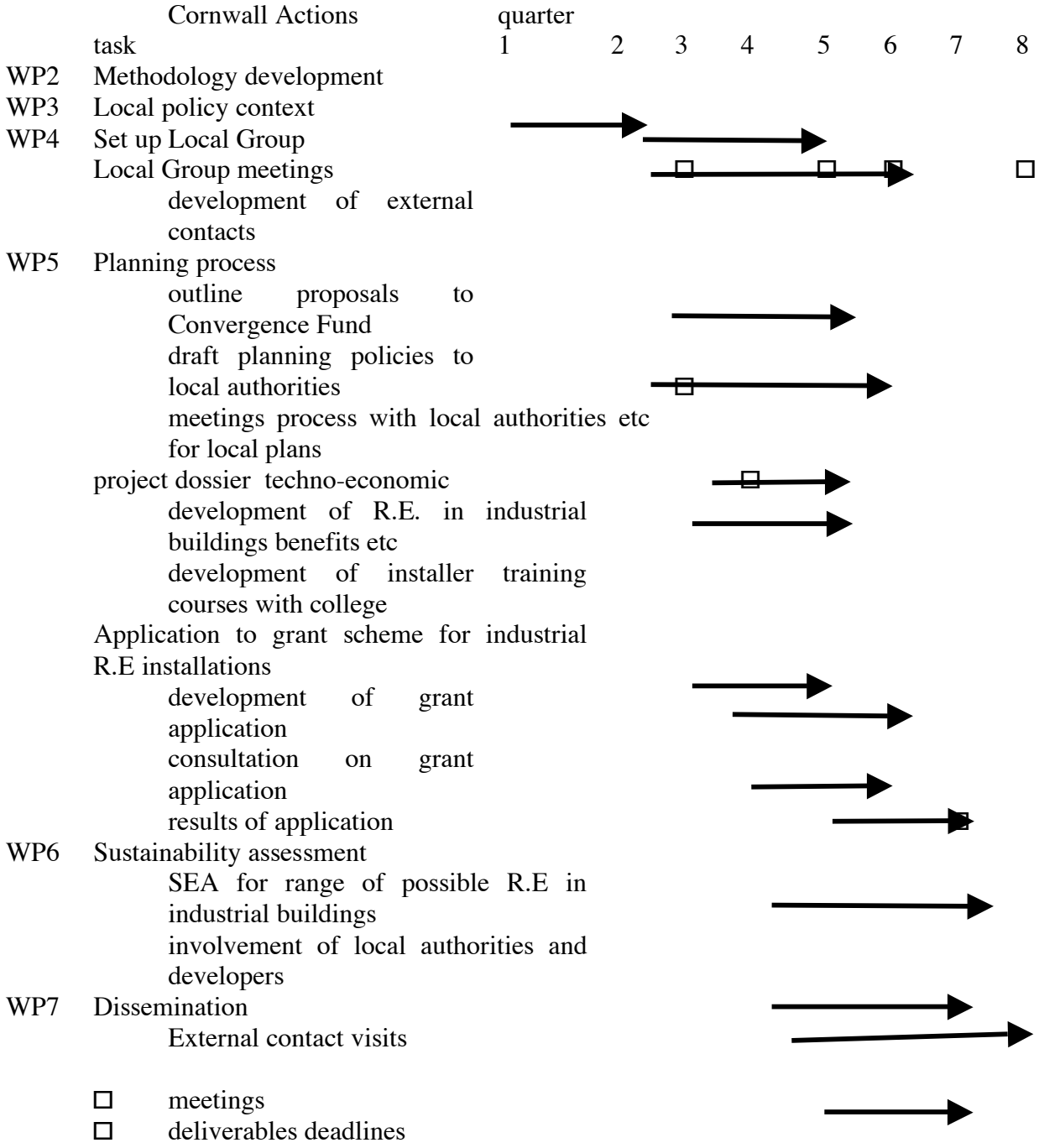
- Camborne-Pool-Redruth Regeneration
- Cornwall Federation of Small Businesses
- Cornwall Chamber of Commerce and Industry
- Government Office of the South West
- Cornwall County Council
- The 6 district Councils
- Royal Town Planning Institute SW group
- Royal Institute of British Architects: SW branch
- Royal Institute of Chartered Surveyors : SW branch
- Institute of Chartered Engineers: SW branch
- SW Energy Managers Group
- Local developers eg BLS, Richard Walker Developments

We aim to include the professional associations in the process as their members will be involved in the carrying out of the programme once it is in place. It is therefore useful to include them in early in the process, so ensure better understanding and involvement

Each of the central and local government agencies needs to be included so that they all understand the process and can stand together on moving forward, which is a necessary requirement for action from public agencies.

5 Planning steps

Planning phase outlined in Gant chart below


Cornwall Actions
quarter
task
1
2
3
4
5
6
7
8
WP2 Methodology development
WP3 Local policy context
WP4 Set up Local Group
Local Group meetings
development of external contacts
WP5 Planning process
outline proposals to Convergence Fund
draft planning policies to local authorities
meetings process with local authorities etc for local plans
project dossier techno-economic
development of R.E. in industrial buildings benefits etc
development of installer training courses with college
Application to grant scheme for industrial R.E installations
development of grant application
consultation on grant application
results of application
WP6 Sustainability assessment
SEA for range of possible R.E in industrial buildings
involvement of local authorities and developers
WP7 Dissemination
External contact visits
meetings
deliverables deadlines

6 Expected activities

The expected deliverables from this activity are in the several strands of actions required to accelerate the implementation of renewable energy in industrial buildings in Cornwall. The three main strands are:

Planning guidelines in each local planning authority
Development of a grant scheme for renewable energy equipment installations in industrial buildings
Development of training courses for renewable energy installers

The deliverables related to these strands are:

Report on planning policies in the six Cornish District planning authorities
Guidelines for the grant scheme, developed with a major developer
Grant scheme application for installation of renewable energy equipment in Cornish industrial buildings
Report on progress with Cornwall College on development of installer training courses

In addition there are strands of activity related to the Dissemination part of the contract. The deliverables here are those needed in the contract and include the reports to the main project and the Local Advisory Group meetings.

The work is expected to be performed by REOC and its consultants and by Cornwall Enterprise and its consultants. No external contracts are expected or allowed for in the contract for this EIE activity. We will be including some work with local developers of industrial buildings to ensure that the grant application process will meet the needs of the developers.

We do however intend to include the local and regional government and public agencies tasked with economic development. This will be by means of direct contact mostly with individuals already known to the project team, who will be willing to put in the effort at meetings to advance the aims of the project to rapidly increase the amount of renewable energy in industrial buildings in Cornwall.

The main activities have been described in section 5 above.

Lithuanian Energy Institute (LEI)

EC - EIE Programme - SEIPLED Project

"WP 2: METHODOLOGICAL DEVELOPMENT AND TOOLS"

TOPICS

Local approach
Local conditions
Barriers
Stakeholders
Planning steps
Expected activities

Glossary abbreviations

NEEP	**National Energy Efficiency Programme**
LEA	**Lithuanian Energy Agency**
RES	**Renewable Energy Sources**
UNFCCC	**United Nations Framework on Climate Change Convention**
EE	**Energy Efficiency**
LEIF	**Lithuanian Environmental Investment Fund**
NGO	**Non Governmental Organisation**
ZUB	**Agricultural Company (abbreviation of Lithuanian (Zemes ukio bendrove)**
GDP	**Gross Domestic Product**
TPES	**Total Primary Energy Supply**
VAT	**Value Added Tax**
PPP	**Purchasing Power Parity**
LBSA	**Lithuanian Business Support Agency**

1. Local approach

Context: Creation of favourable conditions for sustainable development in Lithuania
Mitigation of environmental impact and energy affordability are the targets of sustainable energy development which can be achieved only by implementation of Government wise energy policy. Therefore the main role of the Government is reorienting energy policy towards sustainable development .
There are at least 3 market failures which hamper sustainable energy development: negative externalities caused by pollution or external costs, positive externalities associated with innovations and diffusion of new environmentally friendly technologies including energy efficiency improvements and use of RES and the problem of incomplete information or asymmetry of information.
In the case of pollution as an externality, the polluter gets the benefits derived from polluting and imposes the pollution costs on others. In the case of new environmentally friendly technologies, the problem is reversed. A firm investing in or implementing new technologies typically generates benefits for others and incurs all the costs. The positive externality of innovation comes from the public-good nature of new knowledge – innovating firms cannot keep other firms from also benefiting from their new knowledge and therefore cannot capture for themselves all the benefits of the innovation. Of course successful innovator captures some rewards but these rewards will make just a fraction of overall benefits to society of the innovation.
As it takes time for potential users to learn new technologies, try them and adapt to their circumstances, and become convinced of its superiority an important tool in this learning process is the observation of the adoption of the new technologies by others. Therefore the adopter of a new technology creates a positive externality for others in the form of the generation of information about the existence, characteristics, and success of the new technology. The production costs of new technology tend to fall than manufacturers gain production experience. Therefore innovating firm benefits others manufacturers without compensation and it can also be treated as additional adoption externality.
Both innovation and diffusion of new environmentally friendly technologies are characterized by additional market failures related to incomplete information. Information about prospects for success of given technology is asymmetric, in the sense that the developer of the technology is in a better position to assess its potential than outsiders. A firm willing to raise investment capital to fund development of new technology will therefore finds such investors sceptical about promised returns trying to demand premium for their investments allocated for risky business. This imperfection in the market of capital for funding of new technology development and diffusion requires state interventions in promotion of new environmentally friendly, energy efficient technologies. The market failures with respect to adoption of new technologies are part of explanation for the paradox of underinvestment in energy saving technologies that are cost-effective but are not fully utilized .
Therefore the interplay of new technologies and the environment involves the interaction of two sets of market failures. The result of these interactions is that the rate of investments in environmentally friendly technologies including energy efficiency improvements and use of RES is bellow the socially optimal level because in the absence of public policy environmentally friendly technologies are doubly underpowered by markets (non integrated external costs of pollution and non integrated external benefits of innovation and diffusion of new technologies).

The main goal of LEI working group -

Development of RES and combined heat and power (CHP), implementation of climate change policies, improving energy efficiency and ensuring security of energy supply are all necessary elements of a sustainable energy development that will not necessary be delivered by market forces alone. Economic tools and other state policies should be used to address these issues . However economic tools creating initiatives to reduce pollution are not enough to overcome market failures related to implementation of environmentally friendly technologies. Very important issue is the financing of sustainable energy development process or promoting investments in clean, energy efficient technologies. The huge role in this field can be plaid by EU Structural funds however their use in new member states needs more rationality and more orientation towards sustainable energy development.
It should be emphasized that these sustainable energy development problems related with market failures needs to be solved in integral way. Sustainable development needs organizing and implementing institutions, actors, support measures etc. The main essence of all relevant to energy sector EU directives, policies and measures is to overcome energy market failures: regulation of monopolies in energy sector, dealing with energy externalities, energy affordability, asymmetry of information and energy security.

Expected results (are foreseen by SEIPLED Grant agreement)

Demonstrate that sustainable energy investment projects, characterised by a positive local economic development impact, can be brought up to the level of implementation, using contribution from Structural Funds (SF) or other regional public resources.

Demonstrate the viability of integrated projects, where the sustainable energy dimension reinforces local development aspects (new jobs, new enterprises, added value for farmers), in the frame of larger scale plans.
Assist the beneficiary to integrate sustainable energy issues in projects funded by SF.
Transfer knowledge to all EU local energy agencies and involve more directly at least 64 external already active contacts, most of them in new MS.

2. Local conditions

Typical situation in big pig farms:

The biogas plant may be installed in the farms territory the longest waste way from farm to biogas plant is 500 m.
It should be installed waste pumping pipe network and pumping station. All waste is collected in one reservoir.
In Lithuania manure production must be stored 6 months or shorter if is installed manure hygienisation (sterilisation) process technology.
It is about 24000 pigs in average per year.
Proposed anaerobic digestion tanks for biogas production and CHP with internal combustion. engine.
In possibility study we offer to install 4x 150kWe Electric 4x210kWh thermal CHP units.
Annual production of energy 4665 MWh Electricity; 6530 MWh Thermal; from 1m3 biogas planned production of energy is 2kWhe and 2.94 kWh.
If this question about electricity then for the biogas generation process will be used only heat and very small amount of electricity. All heat will by used in the farm because is no possibility to sell heat energy in this project. About 80% of electricity will by exported off-site to the grid. Other 20%

will be used in farm Electricity tariff for renewables in Lithuania is 0.0579 Euro/kWh. At this moment this farm buying electricity from national grid with average tariff for 0.4 kV network 0.0753 Euro/kWh.

Waste problem in big farms

One of the most important problem of agriculture is stock-raising providing harm to environment. The ammonia discharged into the environment by the stock-raising was calculated to come to 88 %, and methane - to 22% of the total amount of these air pollutants, existing in the gas emission of the Earth. In the preparation of the national regulations of advanced farming, in the review of the fertilisation norms and manure standards the problematic questions of metabolism (N, P, K) are necessarily being solved within the stock-raising farms. They can be conditionally divided into three groups: those of the circulation of nutrients received with the feed in the animal organism, those of manure and slurry circulation within a barn, and those of manure and slurry circulation in manure and slurry keeping facilities. In many cases, food substance losses tive stages can be treated as chemical pollution, and the reduction of those very losses - as a key to the solution of ecological and economical problems. In the course of ammonia evaporation from the surfaces in a barn, and from the manure keeping places, with the fall water washing out nutrients from the manure facilities the environment is being polluted, and less nitrogen, phosphorus and potassium remain in the manure, the losses of these substances increase, and the quality of the organic fertilisers go down, use of the mineral fertilisers becomes unreasonable. When analysing only the issues of handling manure and sewage which are accumulated in the farm environment without the complex investigation of the nutrient losses possible during all the stages from the ecological point of view, no thorough results of the research can be achieved. Consistent scientific research have to be linked to the registration of nutrient consumption with the feed, accumulation of the nutrients in the production, and transition to excrements [11, 7]. This is the first and the most important link of the cycle of N, P, K element movement within a farm.

Agricultural production and environmental technologies in the countries of developed agriculture, such as France, Sweden, Germany, Netherlands, Denmark are of high technical level. These countries have standards of manure prepared based on balanced full-fledged livestock feeding rates , regional-simulation models of farms that conserve the environment. Due to different livestock keeping technologies predominant in Lithuanian farms, different climatic, soil characteristics, research results obtained abroad can only be applied partially and with large reservations in our country.

Therefore, the purpose of our work was to analyse the nutrient (N, P, K) balance, their conversion into stock-raising production, and accumulation in the manure as well as losses forming in the presence of different livestock keeping, feeding, manure removal and accumulation technologies in pig farms.

Financial problems

Development of RES and combined heat and power (CHP), implementation of climate change policies, improving energy efficiency and ensuring security of energy supply are all necessary elements of a sustainable energy development that will not necessary be delivered by market forces alone. Economic tools and other state policies should be used to address these issues. However economic tools creating initiatives to reduce pollution are not enough to overcome market failures related to implementation of environmentally friendly technologies. Very important issue is the financing of sustainable energy development process or promoting investments in clean, energy

efficient technologies. The huge role in this field can be plaid by EU Structural funds however their use in new member states needs more rationality and more orientation towards sustainable energy development.

3. Barriers

As it was described in the introduction a set of market failures and market barriers limits the development of renewables unless special policy measures are enacted to encourage that development. These barriers are the following:

- commercialization barriers for new technologies competing with old technologies,
- price distortions from existing subsidies between renewables and other energy sources,
- market failures to value the public benefits of renewables,
- asymmetry of information,
- lack of access to capital,
- "split incentives" between building owners and tenants, and high transaction costs for making small purchases.

Many of the benefits of renewables are the public benefits that accrue to everyone. For example, those who choose RES reduce pollution for everyone and provide an environmental benefit to the all society. A customer who is willing to pay more for electricity from RES still has to breathe the same air as the neighbour who might choose not to pay more.

Employment, fuel diversity, price stability, and other indirect economic benefits of RES are being provided for the society as well. For example, for a large industrial customer, it may make more sense to risk moving to another region in response to increases in fuel prices rather than pay more for renewables to stabilize regional prices. While this strategy may benefit the individual firm, it is likely to hurt the region's long-term economic competitiveness. In the same way, firms that can pass on increases in energy costs to customers may also lack an incentive to diversify fuel sources, even though investment in RES would stabilize prices over the longer term.

Research and development that produces societal benefits are also undervalued by markets. The socially desirable level of innovations, research will not be reached because investments probably shift to those areas with the fastest payback. For these reasons, renewables will be unable to compete on a level playing field with conventional generation until new policies are adopted to internalize the social costs of fossil fuel sources. Emission fees or caps on total pollution, with tradable emission permits, are examples of ways to internalize the costs of pollution, increasing competitiveness of renewables. However environmental policies restricting pollution and implementing economic tools do not overcome all market failures hampering development of RES and additional measures to promote investments in environmentally friendly technologies are needed.

Renewable energy technologies face also considerable barriers in market transactions. Customers may have insufficient information to make informed choices. Most utilities provide little information about their emissions or the fuels they use. Because renewable technologies are relatively new, most customers know little about them. They do not know that for example RES technologies can be highly reliable when combined with other options.

Commercial and industrial customers are also generally unfamiliar with renewables and have institutional barriers to purchasing renewables. Industrial energy managers are trained only to find low-cost solutions. RES projects and companies are generally small. Thus they have fewer

resources than large generation companies or integrated utilities. These small companies are less able to communicate directly with large numbers of customers. And they are less able to participate in regulatory or legislative proceedings, or in industry forums defining new electricity market rules. Besides that small projects have high transaction costs. In addition to having higher transaction costs, financial institutions are generally unfamiliar with the new technologies and likely to perceive them as risky, so that they may lend money at higher rates. High financing costs are especially significant to the competitive position of renewables, since RES generally require higher initial investments than fossil fuel plants, even though they have lower operating costs.

When renewables are used locally to provide power to individual buildings and businesses through photovoltaic, fuel cells, or small wind turbines, they encounter additional market barriers. Landlords own some of the most cost-effective building sites, but are unlikely to install equipment just so tenants can realize energy savings. And tenants may not have the right to modify the property or the interest in making a long-term investment. This creates a problem of principal agent and describes the paradox why efficient energy saving technologies are not widely spread.

Therefore the additional to fiscal measures financial mechanisms are needed to maximize the public benefits related to RES, and ensure appropriate investments in sustainable energy development options.

Overcoming the financial barriers (1. survey of financial policy in Lithuania)

Overall tax burden in Lithuania (budget revenues/GDP) makes more than 20%. Comparing with EU countries it is quite low. The most important fiscal measures which have an impact on enhancement of renewable energy sources are: Value Added Tax; Excise Tax on fuels; Income taxes; Natural Resource Tax; Oil and Gas Resource Tax and Pollution taxes.

Value Added taxes makes more than 40% of Lithuanian state budget revenues. Excise taxes amounts to about 20% of state budget revenues. From these taxes excises on Fuels makes more than 40% Personal income taxes makes about 16% of budget revenues and corporate income taxes – 5%. Natural resource tax amounts to 1% of budget revenues and pollution taxes only to 0.003%.

The Law on Corporate income tax adopted on 20 December 2001 imposed the main 15% tax rate for taxed corporate income. The zero tax rate on reinvested corporate incomes was abolished in 2002. The impact of abolition of the zero tax rate on reinvested corporate incomes was somewhat mitigated by the reduction in corporate income tax from 29% to 15%.

The uniform duty rate of 15% is being applied for motor gasoline, diesel fuel, light fuel oil and other gas oils. Both VAT and Excise Duty are also assessed at point of import and importer is required to have a petroleum product import license which is 500000 LTL. The license for wholesale trade in oil products is 100000 LTL. The fees should be uniform for import and wholesale trade.

Though pollution taxes are quite low in Lithuania they have some impact on promoting use of renewable energy sources. For example tax for 1 TJ of energy produced from burning wood timber now is approximately 126 LTL, and from burning coal – approximately 659 LTL. There were attempts to introduce tax exemption for stationary polluters using bio-fuels and reduction for pollution sources co-combusting bio-fuels with oil products since year 2000 but this amendment for the Law on Pollution taxes was postponed after debates in the Parliament.

There are only few direct support measures or tax incentive to use renewable energy sources available in Lithuania. Both of them apply to bio-fuels. The reduced VAT of 9% is applied on denaturised dehydrated ethyl alcohol and methyl and ethyl ester produced from rapes up to 31 December 2002. Since 1 January 2003 on denaturised dehydrated ethyl alcohol and methyl and ethyl ester will be exempted from VAT. Legal and natural persons, which use bio-fuels and present the documents proving the use of bio-fuels, are exempted from the tax for pollution from mobile pollution which is based on the fuel consumption and is levied per tone of fuel consumed.

Utilization of RES can be supported by implementing new environmental taxes (for example CO2 or product taxes on fuels based on the carbon content in the fuel). At the same time a re-designing of tax systems to promote energy efficiency and environmental protection should be encouraged. This can be achieved through the reduction of taxes on income, VAT and others and increases in existing environment-related taxes and/or the introduction of new ones to internalize the external costs of energy production and use. The new environmental taxes combined with a reduction in other taxes, preferably distortional taxes (e.g. taxes on personal and corporate income) can yield additional non-environmental benefits, such as greater economic efficiency and development.

4. Stakeholders

The SEIPLED general objective is to demonstrate that sustainable energy investment projects, characterised by a positive local economic development impact, can be brought up to the level of implementation, using contribution from Structural Funds (SF) or other regional public resources. The partners will:
Demonstrate the viability of integrated projects, where the sustainable energy dimension reinforces local development aspects (new jobs, new enterprises, added value for farmers), in the frame of larger scale plans.
Assist the beneficiary to integrate sustainable energy issues in projects funded by SF.
Transfer knowledge to all EU local energy agencies and involve more directly at least 64 external already active contacts, most of them in new MS.

Taking into account what is SEIPLED overall goal we have selected most appropriate organisation which could have influence into the project preparation process :
Sustainable Energy Agency, Kaunas Regional Energy Agency, CHP designing company, Lithuanian Business support agency, Lithuanian Agriculture University.

5. Planning steps

It is rather difficult to define planning phases into details. We can not to imagine other planning steps than foreseen in the SEIPLED work packages. However we can make profit from interrelations with other projects, BACCHUS and RUSE which are focused on use Structural Funds financing.

BACCHUS project produced also the awareness of the main obstacles still hindering an easy access to local development resources of energy project plans, at least in the new MS, but also in many of the old ones. The organisations operating for the regional government as a support in the planning and implementation of regional development, called in general Regional Development Agencies (RDA), are still reluctant to accept energy plans and projects among the priorities, as reported also by EURADA (the EU association of RDA), when it declined the invitation to participate in the

SEIPLED proposal. There are multiple reasons for this: we may mention, among them, the economic background of most personnel, having a natural resistance towards a subject seen as very technical, the preference for project plans producing new jobs in a quicker way (Tourism infrastructure, innovation, Information and communication technologies), the difficulty of cooperation with local and regional energy agencies, seen as potential competitors, etc…

Possible value added of RUSE project and imperfect information

An INTERREG IIIC Programme project RUSE (Redirecting Urban areas development towards Sustainable Energy) has been launched in order to transfer experience of EU15 to the New Member States (NMS) in field of sustainable energy projects, financed by SF. In this project the exchange of experiences represent a very important European Added Value (EAV).

Since 2004, the Structural Funds are available in the new member states and are clearly an opportunity for linking sustainable energy and urban development by creating and stimulating the integration of energy issues in urban development policies including all its impacts on the environment.

Experience has already been gained in the EU15. Sometimes this has been a bad one, for instance when the Structural Funds have not been used in the best way by promoting infrastructure projects without taking into account their impact on natural resources or climate issues . On many other occasions it has been a good experience, for example when energy issues have been considered from the point of view of energy demand and promotion of local renewable resources rather than simply from that of the supply side via investment in grids and trans-national networks. This experience must be used by new Member states to avoid the same mistakes and to integrate these aspects in the preparation of the projects, as requested by the rules of European Regional Development Funds.

However practices which should be the standard often still are the exception and a majority of new infrastructure or building projects as well as major renovation schemes are still carried out without any consideration being given to their energy impact in spite of the EU defined priorities for the control of energy demand and for limiting CO_2 emissions. Energy issues are not the most visible part of local planning compared to the construction or even the renovation of infrastructure and buildings. Energy efficiency and energy saving measures are Community priorities which should be automatically included in the requisites of projects applying to a support from the Structural Funds.

The RUSE operation aims at improving the use of Structural Funds and other financial resources by municipalities and other stakeholders in charge of urban development issues in New Member States and candidate countries thus progressing towards a better integration of sustainable energy issues (energy efficiency, renewable and distributed generation) in their projects.

To achieve the improvement of the use of Structural Funds, the RUSE operation has the following four main objectives:

To make municipalities and related bodies in New Member States and third countries more aware of existing Structural Funds related experience in European countries by disseminating information, promotion good practice and exchanging experience.

To improve capacity building on energy issues in both individual bodies (municipalities) and collective structures (city networks, agencies, etc.).

To prepare municipalities so that they can design projects dealing with their powers and responsibilities in a sustainable manner and to enable them to submit successful proposals under ERDF programmes (incl. INTERREG IIIA, URBAN, etc.). In other words, to help them integrate the concept of sustainable energy in urban plans and put them into practice.

To influence national decision makers regarding the integration of energy issues in their programmes from the point of view of energy demand and the promotion of renewable energy, both of which are good methods for promoting local development.

Inter-regional cooperation – is very powerful tool to overcome major market failure – incomplete information. Therefore cross-border cooperation – is more and more needed as it is very often through the local and regional levels that innovative policies are initiated or improved. And this is even more the case after the enlargement of the European Union with a key issue to be faced by the 10 New Member States in the field of energy: How can the difference in energy performances between the most advanced countries in the EU-15 and the Central and Eastern European Countries be reduced as quickly as possible?
Local authorities need to become organised so that they may:

identify the problems they have in common,
share their experience and know-how,
seek common solutions,
obtain information, organise training sessions,
put across their opinion and influence both European and national legislations,
set up joint projects.

To achieve this, they must also cooperate both at a "regional" level i.e. in the whole of the East European zone, in order to exchange experience and know-how on common problems and with their EU-15 fellow partners in order to make use of the experience that the Western municipalities have been able to build over these last decades and thereby take account of the acquis communautaire.

The removal of these barriers goes beyond the effort of an EIE project. But SEIPLED chose to surround the obstacle, pointing directly to the energy agencies. If energy agencies become capable of preparing convincing project plans (in terms of economic impact), their dialogue with the Regions and with RDAs will be simplified. But to reach this result the agencies need clear guidelines, good practices, and pilot procedures on how such a project plan can be generated and managed in its whole cycle.

Measures of removal barriers, overcome market failures & promote RES

Policies that internalize external costs of pollution stimulate the creation of environmentally friendly technologies by increasing the demand for low-cost pollution reduction methods. The growth of demand increases the return to developing such technologies. Government can also stimulate innovation through supply side either by demand side by making it less expensive for firms to undertake research in this area or by performing the research in public institutions. As government can be treated as very large landlord, vehicle operator and user of many kinds of equipment, its decision to purchase certain technologies for its own use has significant effects on the rate of diffusion.
The main economic policies and fiscal measures having impact on renewable energy sources are: pollution taxes, fuel taxes, VAT and excise tax allowances for RES, feed-in prices for electricity produced from renewable energy sources, GHG emission and green certificate trading schemes which can be voluntary or obligatory. However these fiscal measures do not provide sufficient initiatives for the sustainable energy development because deal just with one market failure – negative externalities of pollution however other market failures (positive externalities of innovations and diffusion of environmentally friendly technologies and asymmetry of information) are also need to be dealt. Therefore it is necessary to develop and implement policies aiming

directly at encouraging the development and diffusion of environmentally friendly technologies. The public support is necessary for technology innovation and diffusion.

Government must engage in technology policy and try variety of ways to structure policy in this area to minimize the known policy problems. There such popular models for government support of new technologies: funding of research and development, public-private partnerships, creation of industrial clusters, green purchase agreements than Government initiates the purchase of environmentally friendly technologies, tax credits that reduce price of new equipment which meets certain criteria, direct technology subsidies, educational programmes, awareness rising campaigns.

Though the major aspect of market failure in technology diffusion is imperfect information, educational programmes alone produce limited diffusion of green technologies. For this purpose enhanced financing of environmentally friendly technologies including energy efficiency measures, use of RES etc. is necessary seeking to overcome energy market failures and barriers. Very useful tool from this point is EU Structural Funds. These funds can be used effectively by new member states to overcome a set of market failures: financing of innovations and diffusion of new environmentally friendly technologies, including energy saving measures, use of RES, financing research and development, establishing industrial clusters and technological centres, information dissemination etc.

Finally there are command and control methods forcing the diffusion of environmentally friendly technologies by designing and implementing new efficiency standards in cars, home appliances, building codes etc.

Structural funds: co-financing possibilities

As the concrete priorities of Structural Funds differ among the individual countries, in the following chapter we will present the short overview of possibilities in few new members states which are RUSE partners to apply SF for the financing of sustainable energy projects based on analysis of their Single Programming Documents (SPD) and Operational Programmes (OPs).

Lithuanian GDP per capita is below 75% of the European Union's average and all territory of Lithuania is classified under Objective 1 and is able to draw on support from the EU Structural Funds. Lithuania is also able to draw funds from Objective 2 and Objective 3. The Lithuanian Single Programming Document and its supplement for 2004 - 2006 defines the main strategy for the use of SF in Lithuania and is the final result of internal negotiations within Lithuania between many different public and non-public authorities as well as other stakeholders, followed by an intensive period of negotiations with the European Commission. The rules of EU Structural Funds Projects Administration and Financing were approved by the Minister of Finance on 31st May 2004.

The Lithuanian Single Programming Document (SPD) is being implemented by specific strategies described in five Operational Programmes (OPs):

Development of social and economic infrastructure,
Development of human resources,
Development of productive sector and services,
Rural development and fisheries,
Technical assistance.

The main target or priority of Lithuanian SPD is to strengthen the preconditions for growth in long-term national economic competitiveness and to facilitate the transition to and development of a knowledge-based economy characterised by increasing GDP levels and strong employment growth, leading to higher living standards and increasing well-being for all Lithuania's inhabitants.

There are five OP in Lithuania for the period 2004 - 2006 within the Community Support Framework. The total amount of SF support for 2004-2006 in Lithuania is 895.1 MEUR. The global objective of the OP Development of social and economic infrastructure is to develop new and improve existing physical infrastructure in order to promote economic growth and facilitate the free movement of goods, services and people and to ensure that development supported through the SPD is compatible with the principle of sustainable development. Its Community support should reach 347 million €.

The main objective of OP Development of Human Resources is to improve the skills base of the Lithuanian labour force and to ensure that the workforce is both flexible and adaptable. Another key objective is to upgrade skills and qualifications particularly amongst disadvantaged groups such as the unemployed and young people and to ensure that skills and competencies taught are relevant to labour market requirements. Its Community support should reach 163.8 million €.

The main priorities of OP Development of Productive sector and Services are to strengthen economic competitiveness by creating the necessary framework conditions for growth, the promotion of a favourable business environment and investment climate conducive to the growth and development of both existing businesses and new business start-ups. The overall target of this OP is to strengthen the process of economic restructuring which is already underway in Lithuania. Its Community support should reach 222.4 million €.

The main priorities of OP Rural Development and Fisheries is to is to modernize agricultural holdings and stabilize the demographic situation in rural areas by creating suitable conditions to live and work in the countryside. Other important objectives are to ensure professional qualification of people engaged in agriculture and to establish general conditions for market organization, improvement of fishing conditions and mitigation of social impacts of fishing activities cessation in Lithuania. Its Community support should reach 135 million €.

The Technical Assistance OP aims at ensuring the quality and effectiveness of all steps of preparation, evaluation, monitoring of the SF assistance at all levels of administration and public awareness about structural funds rising involving a wide range of partners in EU assistance planning and monitoring processes and also to ensure effective planning of future investment. Its Community support should reach 26.8 million €.

Sustainable energy projects can be implemented using the schemes from 3 OP:
OP 1: Infrastructure
Priority ID 1-2.2: Renovation of boilers and biomass or natural gas conversion
Priority ID 1-2.3: Local and Renewable Energy Sources
Priority ID 1-2.4: Increase of Energy Efficiency in Public Sector
OP 3: Productive sectors
Priority ID 3-1.1: Implementation of new technologies
Priority ID 3-1.12: Implementation of environmental measures
OP 4: Rural development
Priority ID 4-5.3: Investments to improve and rationalise the harvesting and logging of round wood and forestation.

Priority ID 4-3.3: Investments into industries reprocessing agriculture products

As regards investors preparing projects resulting in increased energy efficiency, energy savings or use of renewable and secondary sources, the possibility to acquire assistance through SF is primarily orientated to the Measure ID 1.2 Ensuring of Energy Supply Stability, Accessibility and increased efficiency which includes 3 priorities relevant to sustainable energy projects:
Renovation of boilers and biomass or natural gas conversion
Local and Renewable Energy Sources
Increase of Energy Efficiency in Public Sector
The main objective of measure 1.2 is to ensure stability, reliability, flexibility and accessibility of energy supply, increase of EE and to form a basis for the stable growth of national economy. This measure corresponds to the main targets of National energy strategy [11] and National Sustainable Development Strategy [12].
Particular sub-goals relating to energy efficiency (EE) or renewable energy sources (RES):
Renovation of boilers and switching to other fuels in the combustion plants currently burning less environmentally friendly fuels (especially burning high sulphur content petroleum products)
Increase the use of RES
Increase of EE in public sector

Particular schemes for project submission:
Conversion of combustion installations to biomass, natural gas
Adjustment of renovated boilers for CC
Installation of new or adjustment of existing energy generation sources to use RES and municipal waste
Implementation of new technologies including CC, use of RES, municipal waste
Renovation of buildings and heating installations
Maintenance & control of energy use in renovated buildings
Energy audits of buildings & infrastructure
Regional cooperation, R&D related to EE improvements & energy market development in national & region al levels
Feasibility studies, information dissemination, education, consultancy and scientific research in this field.

Eligible applicants are State institutions, Municipalities & their institutions, Public bodies, Subjects eligible under the condition of State aid provision: ”Promotion of entrepreneurship, business & investments development”: 1. de minimis support, 2. support to SME, 3. regional aid detailed eligibility requirement are defined during the call of proposals.
Eligible projects are those which ensure *r*eduction of negative impact on environment, increase of reliability of energy supply, use or promotion to use RES, increase of energy use efficiency, implementation of advanced technologies.
The funds allocated for priority 1.2: Ensuring of energy supply stability, accessibility & EE in Lithuania 2004-2006: 82.76 MEUR. The funds which have been distributed up to 01.05.2005 for 3 projects 1.24 MEUR. All these projects were aiming on energy efficiency increase in buildings in public sector.
Structural Funds have a great role to play in improving energy efficiency and the use of renewable energy sources in Lithuania. Up to now, we remain quite far of what is expected despite some interesting examples opening the way for the future. Lithuania has adopted Single programming documents for 2004-2006 which establishes the main strategic directions of EU structural funds use in Lithuania. Lithuanian Common programming document and its supplement for 2004-2006 establishes the main priorities, operational programmes and aims of structural funds use in

Lithuania. The Lithuanian Single Programming Document (SPD) is being implemented by specific strategies described in five Operational Programmes (OP). Sustainable energy projects can be implemented using the schemes from the first operational programme: "Development of Infrastructure".

From the point of view of sustainable energy development the projects proposed for financing via EU SF indicates very low diversity and the absence of strategic approach in cities for implementing sustainable energy development strategies or cities strategic development plans including energy and other important sectors. For the next programming period it would be more useful to have cities sustainable energy development programmes as priorities in operational programmes with description of targets the spectrum of projects but without concrete definitions. In such case the project packages including energy efficiency improvements in generation sector and end use sectors, deployment of renewable energy sources, sustainable transport schemes, etc defined in cities sustainable development programmes, sustainable energy development or climate change mitigation programmes can be submitted for the financing from SF. Such approach would help to implement the targets of sustainable energy development strategies.

6. Expected activities

Specify in a schematic way the expected activities at local/regional level, from January 2006 to the end of the project.
Indicate individuals and organisations involved in the activity, how and when you will select external consultants and subcontracts, expected deliverables foreseen in the project list.
Note: the expected activities differ from the planning steps of previous point 5, as the activities are those ones to be charged on the EIE project, while the planning steps include actions performed by other people/organisations, not necessarily part of the EIE project. Moreover the description in item 5 should be more in logical sequence, here in organisational way.

Schematic way of the expected activities at local regional and national level

1. Definition of the technological and financial pilot scheme in order to install small scale efficient CHP system in pig farm and establish the potential for a larger investment scheme in all the other Lithuanian Regions. The CHP units are also part of a waste management system.
2. Providing analysis of possible support by governmental policy on financial tools and guarantees, environmental tariffs.
3. Extension of the findings and pilot financing scheme into a nation – wide plan.

It comprises the elaboration of the model replicable to other districts:

.

Technical solutions

level of detail and completeness of planning study start-up - analysis (diagnostic of the current situation), planning (definition of the target model), definition of the implementation plan, dissemination)

level of efficacy of the solution in relation to the objective (it means in relation to the operational

factors – for example kW produced- ; to the environmental factors – for example CO_2 reduction-; social factors – for example consensus, level of participation, etc.)
Feasibility study of the costs and benefits
Sensitivity analysis of the solution. It means that the business plan (implementation plan) has the right level of involvement of the stakeholders in the management of the solution during and after the experimentation.
Each technical solution will be assessed and monitored on the basis of these criteria in order to ensure that elements for the improvement of the solutions will be introduced in the development of the pilot scheme.

Policy tools and aids to the specific technological solutions. Collection of the policy measures available at local level for the specific aspect of application to SF. The deriving policy framework will define the dimension of support of the public policy to the sustainable energy issue and the environment of improvement.
Stakeholder's involvement and enlargement. All the possible stakeholders should be identified and involved in the solution. Each specific phase or need (from the simple information, to the consensus building, to management involvement) defines a different level and way of involvement of the stakeholders. The Stakeholders involvement should reach the highest degree of consensus building and collaboration with the SF actors, as well as other public and private actors active in financing the sustainable energy investment.

4. Evaluation of environmental, social and economic aspects, technical specifications, economic scenarios and extension of the planning to all the Lithuanian regions.
5. Sustainability evaluation of the plan.

ANATOLIKI

EC - EIE Programme - SEIPLED Project

"WP 2: METHODOLOGICAL DEVELOPMENT AND TOOLS"

TOPICS

Local approach
Local conditions
Barriers
Stakeholders
Planning steps
Expected activities

List of Acronyms and Abbreviations

GDP	Gross Domestic Product
REACM	Regional Energy Agency of Central Macedonia
RES	Renewable Energy Sources
IGME	Institute of Geology and Mining Exploration

1. Local approach

The area east to the city of Thessaloniki has been known since a long time ago to be rich in geothermal potential. This form of energy gave its name to the town of Thermi, which in the Greek language means «warm».
The main objective of the work in this project is to elaborate a plan for the development and implementation of the various applications of geothermal energy in the wider area of the bay of Thessaloniki.
Since a number of studies are already available which assess the characteristics of the geothermal fields, the purpose is to make concrete proposals for the use of this energy to specific target groups such as farmers, local politicians and interested entrepreneurs, in order to invest in business opportunities making use of existing funding possibilities and technological advances.
In the frame of the project, an advisory committee is to be formed, to bring together connoisseurs of the geothermal potential who will jointly contribute their expertise in attaining the goals of using this energy in a wider, productive and sustainable way.
One of the uses of geothermic in the greater area surrounding the city of Thessaloniki (the second largest in Greece) has been the thermal springs of Thermi, perhaps one of the first type of health spas to be known since the ancient Greek-Roman era.
However, in modern days this energy was never really exploited, not even close to its full potential. Only a limited number of farmers, based on their own initiatives, are using occasionally the underground waters with limited technological know how and expert support. One of the reasons is also related to the national legislation which left many related reissues unclear, in addition to a general lack of organization in promoting activities towards the use of the applications offered by the geothermal potential.
The national Institute of Geothermal and Mining Research (IGME in Greek) has conducted various studies of the underground water temperatures and composition, as well as rock formation, which clearly prove the existence of the geothermal fields, but do not include implementation projects, neither financial opportunities available.
The national legislation has enacted two policies/programs in order to offer financing incentives to potential users, the Operational Competitiveness Program and the National Development Plan. In addition, a new legislative frame concerning RES is in the final stages of elaboration in the Parliament. These policy tools need to be made clear to the stakeholders involved in this project, in order to make it easier for business type actions to take place.

2. Local conditions

The Region of Central Macedonia is situated in the centre of Northern Greece, includes 7 prefectures and has an important geographical position in the Balkan and Black Sea areas. It shares borders with two Balkan countries to the north and it is

located in the cross-roads of the main national and international axes connecting North with South and East with West. Its capital, the city of Thessaloniki is the second centre of development in the country and potential metropolitan centre of the Balkan and the Black Sea areas.

The population of the region is 1,600,000, which is 16.7% of the country's population with a growing trend. Its labour force totals 680,000 people and it entails 17.2% of the country's total. The percentage of the active population is 49.23% (63% men-37% women), the unemployment rate rises to 11.5% (37% men – 63% women), with the labour force being 642.000.

The distribution of employment in the region according to 1992 statistics is as follows: agricultural sector 24.8%, industrial sector 30.0%, tertiary service sector 45.2%. Compared to the European Union, the region has a lower percentage of the population in active employment (44.8% and 41.3% correspondingly) and also an important differentiation in the distribution of occupations (agricultural sector 7.6%, industrial sector 33.2 % and tertiary service sector 59.2%)

The regional GDP/capita is 17.000 € whilst the national one is 16.340 €.

The agricultural sector has a higher productivity rate than the country's average, contributes significantly to exports, and it is especially sensitive to changes over time. Industrial activity is especially developed. It is characterised by strong specialisation in branches (food-drinks, textile, footwear-clothing, non-metal minerals, building materials). The exporting activity of businesses is important and it covers about 30% of the export value of the country's total.

It is worth noting the contribution that tourism has in the economic development of the region from the point of view of total employment and income, as well as inflow of foreign exchange. The main tourist attraction areas are Chalkidiki and Pieria, where high quality services are offered alongside with more economic solutions covering a wide spectrum of budgets.

One of the uses of geothermic in the greater area surrounding the city of Thessaloniki (the second largest in Greece) has been the thermal springs of Thermi, perhaps one of the first type of health spas to be known since the ancient Greek-Roman era.

However, in modern days this energy was never really exploited, not even close to its full potential. Only a limited number of farmers, based on their own initiatives, are using occasionally the underground waters with limited technological know how and expert support. One of the reasons is also related to the national legislation which left many related reissues unclear, in addition to a general lack of organization in promoting activities towards the use of the applications offered by the geothermal potential.

The national Institute of Geothermal and Mining Research (IGME in Greek) has conducted various studies of the underground water temperatures and composition, as well as rock formation, which clearly prove the existence of the geothermal fields, but do not include implementation projects, neither financial opportunities available.

The national legislation has enacted two policies/programs in order to offer financing incentives to potential users, the Operational Competitiveness Program and the

National Development Plan. In addition, a new legislative frame concerning RES is in the final stages of elaboration in the Parliament. These policy tools need to be made clear to the stakeholders involved in this project, in order to make it easier for business type actions to take place.

3. Barriers

The implementation of actions related to RES is almost always not an easy task. On the first hand, laws impose strict conditions at times that are not willingly taken by people, who are sceptical about changing their traditional methods of doing their work.
Bureaucracy is another barrier to overcome, besides lack of techno local knowledge and improper links of communication between the parties involved (from national level to regional & local level to individuals or their cooperatives). Even though sufficient funds may be available, nevertheless they do not reach their destination efficiently and timely. As a result, progress is slow and outdated.
This project intends to bridge the voids between the actors involved in using the many potentials of the existing rich geothermal fields. The proposed action is to put together representatives from all parts of the chain (from legislators to local politicians, scientists, farmers and business people) and offer to them potential projects for implementation, such as soil and greenhouse heating of cultivations, swimming pool heating or thermal spring spa uses.
The whole effort will be linked with specific proposals of contemporary technological equipment and funding opportunities.

4. Stakeholders

Which stakeholders you envisage to involve in your Advisory Committee? Why you select these ones? Which decision makers should be part of the process? Specify any other economic or social representative parts which may influence the realisation.
The Advisory Group will be comprised of the following partners :

1. The Institute of Geothermal and Mining Research
2. The Local Farmers Association
3. The Greek National Confederation of Unions of Agricultural Cooperatives
4. The Union of Municipalities of Thermal Spring Spas
5. The Geology department of the Arsistotelean University of Thessaloniki
6. The Regional Administration and Policy bureau of the Region of Central Macedonia
7. The Municipality of Thermi
8. The Greek-German Chamber of Commerce

ANATOLIKI S.A.-REACM, will coordinate the meetings of the group and collect best practices of geothermal applications for the region, coupled with technological and legislative proposals to facilitate their prompt implementation.

The advisory committee encloses all the important key actors in the proposed field of activity.

5. Planning steps

Define the planning phase of your action, starting with phases already developed and specifying all next steps, indicating motivation, timing, milestones, decisions to be assumed, documents to be produced and approved, agreements with operators or authorities, financing agreements, and so on.

The planning phase includes proposals in three different applications related to geothermal uses:

1. Soil heating of open and greenhouse cultivation of agricultural products such as tomatoes and asparagus, among others.
2. Heating of an Olympic size swimming pool including dressing rooms, planned to be built in Thermi
3. The construction of a recreational spa using the thermal spring potential of the geothermal fields.

Some of these proposed actions (1 & 2) are in a more mature stage than the third. The project aims at making all of them ready to be implemented, through the available funding tools and know-how which will be exchanged during the activities.

6. Expected activities

The expected activities of ANATOLIKI S.A.-REACM in chronological order are as follows:

- January to April 2006 : Collection of available information related to the planned actions, detailed study of the current legislation, formation of the Advisory Committee
- May to June 2006: Report on methodology approach at local level and elaboration of the material contents of the national methodology report. First meeting of the Advisory Group.
- July to August 2006: Collection and evaluation of the six partner methodology reports.
- September to December 2006: Production of the national policy report. Contribution to the common report on policies and aids at local level.
- January to February of 2007: Evaluation of the report on policies and aids. Second meeting of the advisory committee.
- June 2006 to June 2007: Elaboration of a fully developed project plan with techno-economical planning. On June 2007, third meeting of the advisory group. Circulation of newsletters to selected contacts.
- July 2007 to November 2007: Elaboration of a Strategic Environmental Assessment Report. Fourth meeting of the advisory committee on October

2007 and a regional workshop with stakeholders and interested parties on November 2007.

- Contribution to the website of the project, to the flyers and posters and to the newsletters will take place throughout the project, according to the prescribed dissemination activities.