

Management Systems and Relevant Projects

Research IfaS

Development and Introduction of the Communal Zero CO_{2e}
Emission Certification System as a Tool for Sustainable
Communities and Regions

229H-ZECOS

Investing in Opportunities



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INTERREG IV B

ZECO₂S

Zero CO_{2e} Emission Certification System

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1 Introduction

With the purpose of developing management system for ZECOS communities, chapter 2 will give the overview of different management systems that are currently in application. The focus is on the actual content, objectives and the different applications of the systems. The following management systems are considered and tested for compatibility:

1. DIN EN ISO 14001
2. DIN EN ISO 50001
3. Eco-Management and Audit Scheme (EMAS)
4. European Energy Award (EEA)
5. Energy and climate change management, German Energy Agency

Another relevant initiatives and programs (e.g. Covenant of Mayors, The Climate Alliance etc.) can be found in Annex 2.

Chapter 3 and chapter 4 of this document will provide information about projects that are similar to ZECOS and Zero Emission approaches.

2 Management systems

2.1 DIN EN ISO 14001

The International Standard ISO 14001 was published in 1996. It provides practical tools for companies and organizations which want to identify and control their environmental impact and constantly improve their environmental performance. This includes all activities, products and services of a company, which must be reconciled with a defined beginning of environmental policy and it can be used by any organization regardless of its activity or sector.

Figure 1: PDCA: Cycle ISO 14001¹



The standard is based on the so-called PDCA cycle (Plan-Do-Check-Act). In the planning phase environmental policy is set by the company management, which covers all areas of the system that should be introduced. Master plan of the company how the environmental performance can be improved has to be developed. For this purpose, it is necessary to ensure that all legal regulations and guidelines are followed and checked to relevance. The responsibility of management is to define specific environmental objectives that have to be realized in the context of environmental management system. These objectives should be quantitative and qualitative and must be consistent with the company policy. Furthermore, the specified environmental policy in all areas of the company should be known in order to raise awareness of the employees with regard to this environmental policy.

To implement the previously established environmental policy and the associated measures, the responsibility of management is to make the necessary resources available. These includes the necessary personnel as well as technical and financial resources. Management determines a so-called Environmental management officer who has the authority that is required as part of an environmental management system. His task is to ensure the proper implementation, to maintain the continuous improvement of process and to inform the management on the current status. This step also includes training or other actions. It is important that each employee is informed of the measures adopted and the environmental aspects. Any decisions regarding the environmental management system are carefully recorded and properly structured so that they are easily recognisable.

¹ http://www.alexfer.com/new/content_ones/view/1/menuid:224

All processes and procedures that have been changed or introduced as part of the environmental management system should be checked regularly as part of an internal audit. This is done by using special measuring and monitoring methods. The experimental results are documented and evaluated. Correspondingly, legal compliance must be checked and measures for improvement should be made.

Finally, it is the responsibility of management to evaluate the environmental management system. Here are included all the steps that were previously counted, analyzed and evaluated. Through targeted improvement suggestions that are known, weaknesses of the process are eliminated.

Application

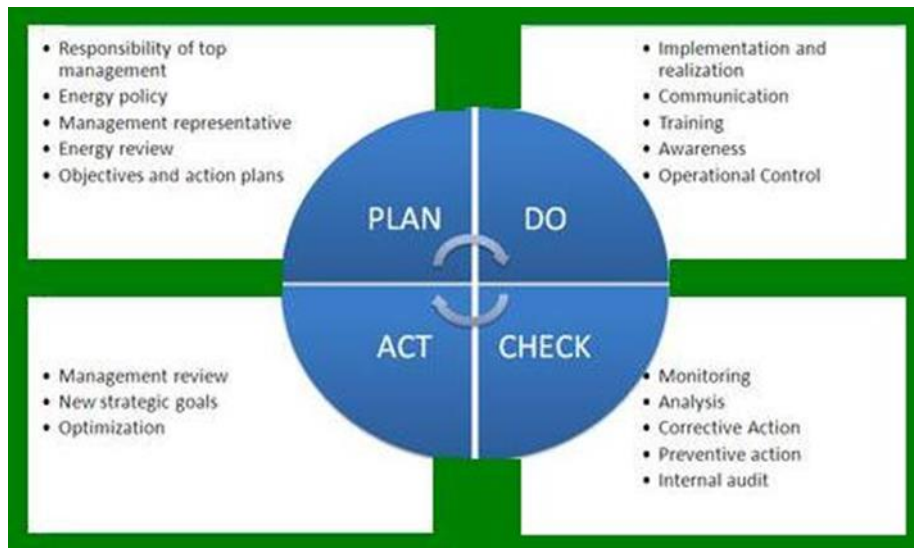
The standard "should be applicable in organizations of all types and sizes and in different geographical, cultural and social conditions."² To date, however, no community is known to be certified according to DIN EN ISO 14001.

2.2 DIN EN ISO 50001

Introduced in 2011, International Standard ISO 50001 assists companies in the implementation of energy management system. ISO 50001 supports organizations in all sectors to use energy more efficiently through the development of an energy management system (EnMS). Using energy efficiently helps organizations save money as well as helping to conserve resources and tackle climate change. ISO 50001 is based on the management system model of continual improvement also used for other well-known standards such as ISO 9001 or ISO 14001.

² DIN EN ISO 14001, S. 5

Figure 2: PDCA cycle to DIN EN ISO 50001³



Similar to ISO 14001, this standard is based on the so-called PDCA cycle (Plan-Do-Check-Act). At the beginning, energy policy is set by the corporate management that is prepared on the basis of a first energy data and survey costs. This should concrete strategic and operational objectives. Measures included are combined and implemented in the later sequence of action plans. The management determines energy management team and officer responsible for the implementation of the energy management system. All important and relevant laws and regulations should be recorded and reviewed and special measures to identify future improvements should be formed.

In the second phase, management must ensure that the necessary funds can be available. To bring all employees on the same level of knowledge in terms of energy management, it is important to organize the trainings in order to improve awareness. A communication of the essential content of energy management outwards is not mandatory, however, spreading selected information leads to improved image for the company. Contents of the information that will be public should be carefully examined before. All elements of the management system should be carefully recorded and systematically classified. The company should examine all processes accurately so that more opportunities for energy efficiency could be found.

To control and monitor the energy management system, internal audits should be carried out regularly. In the context, consumption analyzes and verified compliance with all legislation are required. The results of audits are now able to evaluated and appropriate to develop improvement measures. It is also the responsibility of management to review the energy

³ <http://www.iso50001-consultant.com/>

management system. Here, the current status and the effectiveness of energy policy should be reviewed. The results of the management review have a new beginning of the cycle result: a change in environmental policy and decision for implementing a new measures are possible.⁴

Applications

"The international standard is applicable to all sizes and types of organizations, regardless of any geographical, cultural and social conditions."⁵ To date, however, the standard has been applied mainly in the manufacturing sector. Eisenkappel in Austria is the first and only municipality that has been certified to ISO 50001 worldwide. The certification has been done in 2011.⁶

2.3 Eco Management and Audit Scheme (EMAS)

Developed in 1993 by the European Union EMAS management system helps its users to improve their environmental performance permanently. As above described norms, EMAS is also based on PDCA cycle (Plan-Do-Check-Act).

Figure 3: EMAS PDCA cycle⁷



⁴ Leitfaden BMU; Energiemanagementsysteme in der Praxis; <http://www.umweltbundesamt.de/>

⁵ DIN EN ISO 50001, S. 5

⁶ <http://www.bad-eisenkappel.info/726-0-energiemanagement-eisenkappel.html>

⁷ PDCA-Zyklus EMAS; Quelle: http://ec.europa.eu/environment/emas/about/enviro_en.htm

Process starts with the responsibility of management to establish environmental policy. It should include not only the specific objectives, but also reckon the reasons why these objectives are important. Subsequently, a detailed environmental assessment should be carried out. Here all activities, products and services should be examined and evaluated. To comply with the legal requirements, continuous information regarding the environmental legislation are necessary. Following, the responsibility of the company is to establish environmental objectives concerning specified environmental policy and the results of the environmental assessment. These should be clearly defined and communicated within the company. The previously established objectives are now listed in a detailed work plan. This includes the following aspects:

- Single-target
- Measurement
- End of the actions
- Accountability
- Required resources

In the first step of the implementation phase, the company should determine one or more responsible persons for the Environmental management system according to EMAS . The person who coordinates the system has the primary responsibility is called EMAS captain. Through information and training for all employees environmental awareness should be expanded. Thus, each employee has the opportunity to present themselves by their own proposals or through their own behavior and thus make a positive contribution to the company. All activities and decisions should be documented. These documents should be available to anyone and are always maintained and updated properly.

In check phase, in order to determine the current status of the company, regular monitoring and review as part of an environmental audit should be done. Similarly, the compliance of the necessary legislation should be examined. The focus of the review should be on the " EMAS core indicators":

- Energy efficiency
- Material Efficiency
- Water
- Waste
- Biodiversity
- Emissions

Identified during the review phase, week points should be corrected or eliminated. Also, the data collected should be recorded and stored in order to compare them with the latest version. The management should be informed in regular intervals about the current state of the environmental management system. Subsequently, the Board has the responsibility for assessing the management system and where appropriate to undertake new measures or changes. The previously done review, leads to restart of the cycle: change in environmental policy and decisions for new measures are possible.

Public relation:

So-called EMAS environmental statement should be brought to the public. It can help to improve the discernibility of the company and it should contain the most important aspects of the environmental management system.

Applications

"EMAS is a voluntary instrument of the European Union for businesses and organizations of every size and industry in improving their environmental performance."⁸ To date, in Germany municipalities Teningen, Illingen and Eppelborn; Harz district and the cities of Münster and Mosbach have certified management system according to EMAS.

2.4 European Energy Award (eea)

European Energy Award is a program for planning and realizing energy and climate protection policy goals and measures in municipalities. Its is designed to act as a quality management system and certification process (all municipal energy and climate protection activities are systematically determined, assessed, continually checked, coordinated and precisely implemented).

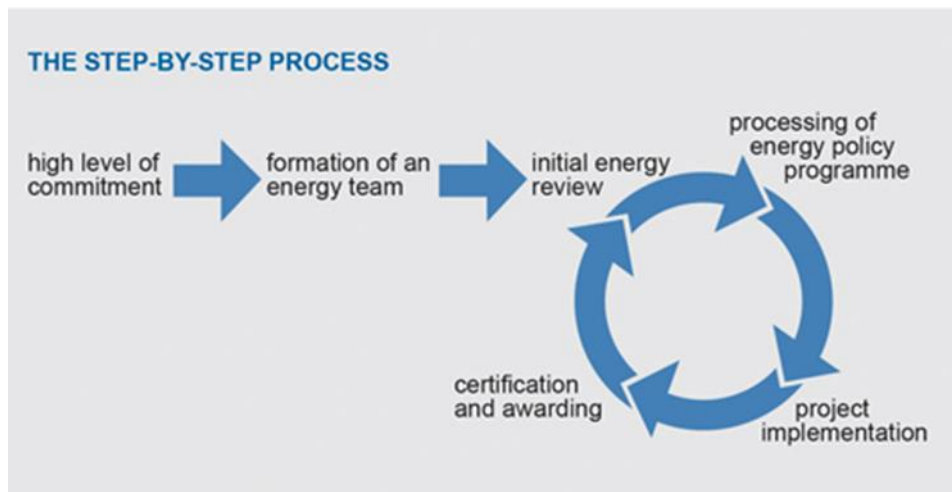
EEA includes Europe-wide network of experts, such as:

- Energy Team: composed of representatives of various administrative departments and private enterprises
- Energy expert: accompanies and advises the municipality and supports the Energy Team
- Auditor: accredited; task is to check the the EEA complies with European quality standards.

⁸ www.emas.de

This process at the usual business management cycle is based on "Plan-Do-Check-Act" cycle supplemented by the steps: "analyzing", "certification" and "distinction", described in the following figure.⁹

Figure 4: eea step-by-step process



Analysis of current situation includes recording and evaluation of the community's energy and climate projects, with the help of a catalog of measures that is implemented to date. As a result, the profile of strengths and weaknesses of the community are considered.

In the planning phase, untapped potential of the community can be identified and priorities can be defined by using the actual analysis. This includes development and adoption of "Energy policy work program" with a binding action plan for the coming year. Following step is implementation of the measures defined in the "Energy policy work program". The measures implemented are recorded and evaluated. The Energy Team is reviewing whether the planned objectives are realized and have been attained (Internal Audit). In the act phase, the actual situation is adapted to the results of the audit. Then the cycle begins again.

Certification:

The certification of the system is performed by an external auditor of eea. This can take place as soon as the municipality has reached 50% or more of the maximum possible score.

⁹ <http://european-energy-award.org>

Award:

It the case that local authority makes a particularly good result and this is confirmed by the auditor, the municipality is awarded the with European Energy Award or the European European Energy Award Gold.¹⁰ All measures are summarized in the most important instrument at the European Energy Award, the catalog of measures. This is divided into six different topics:

- Development planning, spatial planning
- Municipal Infrastructure
- Supply and disposal
- Mobility
- Internal organization
- Communication

Each measure is evaluated with a maximum achievable score. Thus, the individual measures can be classified according to effectiveness and the key actions can be identified. Based on the scoring of the implemented measures, municipality can be classified and certified.

Applications

"The European Energy Award is the program for implementation-oriented energy and climate policy in cities, towns and counties."¹¹ On one hand it helps the communities to increase their energy efficiency, on the other hand it increases the use of renewable energies. So far, 242 cities and towns and 28 counties by the European Energy Award were certified.¹²

2.5 Energy and Climate Change Management, German Energy Agency

Developed by the German Energy Agency, Energy and climate change management, also presents a cyclic process to improve energy efficiency in municipalities. It consists of six steps that are explained below.

¹⁰ Vgl. <http://www.european-energy-award.de/qualitaetsmanagement>

¹¹ <http://www.european-energy-award.de/>

¹² <http://www.european-energy-award.de/eea-kommunen>

Step 1: Creation of organizational structures

In the first step of the Energy and climate management, clear organizational structures need to be created and all the responsibilities placed. For example this includes the appointment of an energy and climate coordinator.

Step 2 : Mission development

After determining the responsibilities of the local authority must design an energy and climate policy model. This should be fastened to a Council decision in the municipal structures and then made public. The mission statement includes a voluntary commitment for the improvement of energy efficiency.

Step 3: Situation analysis

The analysis of the initial situation is a precondition for a subsequent meaningful action planning. The evaluation of the inventory data and the identification of potential efficiency must be made in each municipal area.

Step 4: Setting goals and action development

Based on the analysis results, the formulation of measurable objectives for the individual fields of action can take place. They help the community to monitor the success of energy efficiency and climate protection activities continuously. On the basis of the objectives and measures subsequently it can be established energy and climate protection program.

Step 5: Financing and planning measures

The choice of measures and their financing are closely tangled. Each municipality has to define individually and check for relevance, efficiency and affordability to their appropriate policy mix.

Step 6 : Implementing Energy and Climate Program

The implementation of the proposed measures depends primarily on a well-functioning project management. The responsible energy and climate change manager is coordinating the various projects and provides for the exchange of technical areas involved.

As part of the local Energy and climate change management, Energy Efficiency projects are divided into four fields of action. Among these are :

- Efficiency improvement in municipal buildings
Energy-efficient renovation and new construction of municipal buildings and building

use of renewable energy: biomass , solar thermal, photovoltaic

Set of high-energy building standards for new buildings , such as passive house construction , etc.

- Power supply systems: strategies for a sustainable energy supply
Efficient energy use by advanced equipment and control engineering
Use of renewable energy or low-CO₂ energy sources, etc.
- Transport: more energy efficient mobility
Conversion of the municipal vehicle fleet to more climate-friendly vehicles
Use of public transport for business trips
Provision of service bicycles, etc.
- Efficient use of electricity in communities
Retrofitting of Street Lighting
Green IT procurement of energy-efficient office equipment , etc.

In addition, the issue of communication is the focus of the management system. However, it is not explicitly mentioned as an independent field of action. However here are particular to :

- Information and advice for residents (Energy Advice Centre) for building renovation, saving electricity, renewable energy
- Education projects on energy efficiency and climate protection in schools
- Parking concepts, traffic management measures, etc.

Applications

"The energy and climate change management was developed by German Energy Agency (dena), specifically to assist municipalities in reducing the energy consumption in all fields in the long term."¹³ It was designed so that every community, regardless of their size and situation, may introduce the energy and climate change management. To date, three are so-called "model communities" which started to introduce this management system. These include the municipalities Remseck, Magdeburg and Schenefeld .

¹³ www.energieeffiziente-kommune.de

2.6 Management Systems, conclusion

The analysis of the various management systems revealed that the introduction of environmental management systems EMAS and ISO 14001 at the local level are possible, but until now they are not widespread. This is confirmed by the number of municipalities, towns and cities mentioned regarding the implementation of such systems. Also, the energy management system, ISO 5000 applied on a local level has a small response. This demonstrates the fact that to date, no municipality in Germany is certified by ISO 50001. Eisenkappel in Austria is the first and only municipality that has been certified to ISO 50001 worldwide (2011). Since then no new certifications in the municipalities, towns and cities have been reported.

The most appropriate management system that would correspond to the ZECOS communities is European Energy Award (eea). It is the fact that eea has relatively complicated procedure and it is very detailed system which goes deep in to the content, but at the same time, eea is based on the indicators that also have a significant role in developing new ZECOS Management System. Therefore, it is the intention that ZECOS Management System meets the requirements of eea but simultaneously this management system should require less efforts for communities in the process of implementation and also it should result in less costs (overview of the costs for previously described Management systems can be found in Annex).

The ZECOS Management System will contain two different groups of indicators: based on procedure (decisions, feasibility studies, legal structure, management system implementation) and based on results (indicators based on MFA methods). These indicators will be derived from the first step of Management system- Material Flow Analysis. Accurate process and selection of indicators will allow to put up the new Scoring model. Hence, ZECOS Management System will be based on a Scoring model. Similar like for eea, each undertaken action will be evaluated with a maximum achievable score and the individual actions will be classified according to effectiveness. Based on the scoring of the implemented action, municipality can be classified and certified. In that way, communities will be able to obtain the ZECOS CO₂ emission reduction certificate and ZECOS label of different levels.

3 Interesting projects

3.1 MEDZEROCO2

<http://www.medzeroco2.eu/>

The launch of Covenant of Mayors¹⁴ initiatives by EU commission in January 2008 had represented a milestone for local public authorities in playing an active role in energy policies. Around 1.200 municipalities have already signed the Covenant and a great part of them are small municipalities.

The first commitment in order to be part of the Covenant is the designing of the **Sustainable Energy Action Plan (SEAP)**: the key document that shows how the local government will reach its GHG emission target.

This task are representing a deep criticalities for a growing number of signing cities, in particular the smallest ones, which are realizing that they haven't neither the competences to design the *SEAP* nor the funds to implement it. From the wish to find a solution to this common problem ZeroCO(2) born.

Who?

Project partnership is composed by local public administrations, local and national energy agencies environmental NGO and other technical structure which are implementing in years positive actions in the field of energy efficiency mainly funded by Intelligent Energy Europe Programme. In particular ZeroCO(2) wants to capitalize and match the experiences developed in two of these projects: 3-NITY, based on supporting actions toward local planners in design and implementation of energy policies with the deep engagement of market actors and citizens, and RuralEvolution which apply *PPP* scheme to the creation of agro-energetic local district.

The following results will be achieved:

- Enhancement of energy performance of Med area, towards the goal of Zero Emission Community.
- Attraction of private funding on initiatives of sustainable economic development.

¹⁴ The [Covenant of Mayors](#) is the mainstream European movement involving local and regional authorities, voluntarily committing to increase energy efficiency and use of [renewable energy sources](#) on their territories. By their commitment, Covenant signatories aim to meet and exceed the European Union 20% [CO₂](#) reduction objective by 2020.

- Creation of new businesses and job opportunities in a framework of local sustainable development.
- Behavioural changes in citizenship of the involved areas and their deep engagement in Zero Emission community realization.
- Adoption, by other local institutions beyond project partnership, of the *PPP* scheme and of energy efficiency policies.

3.2 Energy for mayors

<http://www.energyformayors.eu/>

- supports reaching the EU climate and energy goals by involving European cities and towns in sustainable energy planning, reducing energy consumption and increasing the share of renewable energy sources
- The aim is to contribute to the successful implementation of the Covenant of Mayors, a European initiative for climate protection, through:
 - strengthening its Coordinators and Supporters
 - assisting in the development and implementation of Sustainable Energy Action Plans (SEAPs)
 - monitoring SEAP implementation and its results
 - increasing the number of Covenant Coordinators and Supporters
- based on a consideration that Covenant Coordinators (CC) and Supporters (CS) play a vital role in Covenant implementation but they need guidance in order to be successful and effectively support Covenant signatories, in particular small and medium municipalities who lack necessary skills and resources to fulfill Covenant requirements
- The project assumes building CC and CS capacity through organization of specific **trainings**, development and dissemination of a **toolbox**, **exchange of experience** and **networking**
- Within the frameworks of the project also municipalities will be supported. Project partners from 10 regions, who are Covenant Coordinators or Supporters themselves, will assist around 70 municipalities in the development and implementation of their Sustainable Energy Action Plans (SEAPs) by involving local key stakeholders as well as by organising a series of workshops in each of the regions
- Covenant Coordinators are public administrations (e.g. provinces, regions and national authorities) which provide strategic guidance and financial and technical support to municipalities signing up to the Covenant of Mayors

- Covenant Supporters are European, national and regional networks and associations of local authorities which use their expertise and lobbying, communication and networking opportunities to promote the Covenant of Mayors initiative and support the commitments of its Signatories
- Additionally, the ENERGY for MAYORS project will test the combination of developing a SEAP with implementing an Energy Management System (EMS) according to the new ISO 50001 standard
- Active involvement of different stakeholders is essential for successful development and implementation of Sustainable Energy Action Plan (SEAP) which concerns both public and private sector
- Organisation of energy days: a local event that aims at raising public awareness of issues such as energy efficiency, use of renewable energy sources and the links between energy and climate change

3.3 Covenant CapaCITY

www.covenant-capacity.eu

- The main project aim is to assist Sustainable Energy Action Plan (SEAP) development in Europe - from motivation, planning, implementation, to monitoring and evaluating. It does this by dealing with three main activities:
 - (1) An easy learning programme is offered to local governments (local leaders and municipal staff)
 - (2) A ‘train-the-trainer’ programme to extend the support offered, inviting participation of representatives from local government associations and networks energy agencies working with municipalities
 - (3) It actively supports selected cities and towns in 15 countries – step-by-step rolling-out their Local Climate and Energy Actions.
- It is a 3-year project which started in June 2011 and runs until May 2014
- CapaCITY offers a comprehensive European capacity building programme for local governments to support all the phases of implementing a **Sustainable Energy Action Plan (SEAP)**
- Free training is offered in the project lifetime to specific actors: Local governments in Europe, Potential trainers – through the capaCITY trainer program
- The training programme deals with developing a new SEAP and provides ideas when reviewing existing SEAPs; the structure:

- **8 inter-connected topics (dealt with as modules):** greenhouse gas inventories, SEAP development, stakeholder involvement, procurement, plus 4 sectors: buildings, transport, waste, water.
- **Per topic there are two thematic modules** – one for start-up level and another for more advanced communities.
- **Multi-country focus:** Initially a **generic European version (in English)** will be offered, this will be followed by **12 country versions** to address country-specific aspects

3.4 Sustainable Now

<http://www.sustainable-now.eu/en/welcome/>

European project (running from September 2008 - August 2011), which will:

- **Develop capacity** to strengthen the role of local and provincial governments as political and administrative bodies guiding communities in the sustainable energy transition, overcoming non-technical barriers and creating tangible results for sustainability.
- **Create instruments** that build on state-of-the-art Local Energy Action Plan (LEAP) developments to support local governments in decision-making for integrated energy management, climate protection actions and securing local energy supply.
- **Make the results widely available** through the European Sustainable Cities and Towns Campaign.

Guide LEAP implementation in selected learning communities.

- It addressed non-technical aspects, capacity building, peer exchange and reviews in order to create an environment of tangible results with an extensive audience of local and regional actors
- Measures imply an in-depth strategy and involvement of strong local and regional partners as well as EU-wide networks to implement ambitious climate and energy targets
- Results:
 - Improved capacity of Local Governments, using constructive interactions of learning and frontrunner communities, peer-to-peer exchanges, study visits, capacity development workshops, and staff trainee programmes.
 - Energy guidance package with instruments to support Local Energy Action Plan (LEAP) implementation, incl. Integrated climate and energy management and a Local Energy Action Plan wizard for integrated energy action programmes.

- Implementation of 5 LEAPs and related projects in partner communities.
- Improved awareness of citizens & local politicians on sustainable energy, for individuals and roles of Local Governments as community leaders and asset managers.
- Widespread European dissemination with a special focus on Bulgaria, Hungary, Italy, Germany, the United Kingdom.

3.5 Balance globally, evaluate locally (BALANCE)

http://www.eaci-projects.eu/ice/page/Page.jsp?op=project_detail&prid=1441

- 01/01/2006 - 31/12/2007
- Budget: EUR 819 510 (EU contribution: 50%), IEE
- The project is based on a successful certification and quality management system for energy efficient municipalities, the European Energy Award (eea).
- Within the action, the existing eea tools are further developed to achieve a harmonised methodology and a tool for energy/CO₂ balances at municipal level in general as well as individual hard and soft measures in particular.
- The tools were worked out in close collaboration with the municipalities, the eea energy advisors and experts and were supported by a comprehensive evaluation of existing software tools and methodologies.
- The new elaborated tools are easy to apply and also appropriate for the application in smaller municipalities. They are tested in 30 municipalities and after some revision widely implemented within the eea network.
- Finally, based on this work, a system of voluntary agreements between local and regional bodies as well as CO₂ town twinning projects were further developed based on existing good practice examples in business.
- Results:
 - The implementation of harmonised methodologies and/or tools for energy and CO₂ balancing at municipal level in each participating country has taken place. Each partner decided on a specific Balancing Tool for his or her country. The tools were tested and the test phase was evaluated. These experiences are taken into account before the widespread implementation in each country. The target group for the Balancing Tools are the internal or external experts and the advisors of the municipality.
 - The Impact Tool for the estimation of energy and CO₂ saving potentials of measures in municipalities was finalised. Recommendations made by the

municipalities during the testing phase were taken into consideration. The implementation of the Impact Tool started in each country. The target group for the Impact Tool is mainly the internal experts supported by the energy consultants.

- three cities in the Netherlands were certified by an external auditor and awarded with the European Energy Award®, two cities in the Czech Republic were certified by an external auditor. Kněžice was awarded with the European Energy Award®
- A scheme for voluntary agreements between national or regional Ministries and local authorities was worked out. In Austria and Switzerland commitments for CO2 reduction are already part of the eea® contract between the authorities and the communities. In Germany two Länder ministries plan to sign such an agreement.
- An expert hearing about CO2 town twinning examples and good practice took place in Kaunas, Lithuania with participants from several countries. A scheme for collecting data on CO2 town twinning projects was worked out. Existing town twinning agreements involving eea® cities and towns were investigated. The first CO2 town twinning projects were initiated. • At the moment, around 450 municipalities are taking part in the eea programme, 130 more since the start of the project.

3.6 Dundalk 2020 – The Dundalk Sustainable Energy Zone

http://www.seai.ie/SEC/Information_Links_and_Resources/Dundalk_Supplement.pdf

- The Dundalk 2020 Project is creating the first sustainable energy community in Ireland, the project began in 2007 and aims to reach a high level of sustainability by the year 2020
- Dundalk 2020 involves all sectors in the town of Dundalk, such as housing, industry, education, healthcare, retail and leisure facilities → the idea is that everyone has a part to play in the development of a successful Sustainable Energy Community
- The Dundalk Sustainable Energy Zone (SEZ) is a four square kilometre area
- The project is a fully integrated approach across the community and brings together individual projects and individual plans → it is about how all the actions work together and are integrated
- Key to this approach: the use of clear, measurable targets and tracking
- The aim:
 - 40% energy efficiency improvement in selected buildings
 - 20% of all energy used to heat homes and businesses to be generated from renewable sources

- 20% of all electricity used by businesses to be generated from renewable sources
 - ➔ Estimated that these targets will reduce carbon-dioxide emissions by 10,000 tonnes every year from 2010
- A structure of different action groups has been put in place, these are overseen by the Dundalk 2020 Steering Group
- There are seven action groups in all:
 - Energy Supply Company Action Group
 - Built Environment Action Group
 - Demand Side Management Action Group
 - Socio-Economic Action Group
 - Communication Action Group
 - Industry Action Group
 - Research and Technological Development
 - Innovation (RTD) Action Group
- in order for energy efficient solutions to be sustainable, they must also be founded on economic development. As a result of this realisation the Low Carbon Initiative was born
- to begin with it will work closely with Dundalk 2020
- it is a national initiative for sustainable energy innovation. It aims to build on the synergies which currently exist between business, local agencies, communities and other stakeholders in the field of sustainable energy
- By leveraging resources and acting as a catalyst for cutting edge eco-innovation it is hoped that the Low Carbon Initiative can accelerate the development of a vibrant economic centre based on sustainable energy

4 Zero emissions approaches

4.1 Zero-Emission Villages – examples:

- *Zero-Emission-Village* Kaiserslautern
- *Zero-Emission-Village* Weilerbach
- Rockenhausen
- Sprendlingen-Gensingen
- Ostritz

- Landkreis Lüchow/ Dannenberg
- Bio-energy village Jühnde
- Ostfildern
- Wolpertshausen
- Fürstenfeldbruck
- Furth

4.2 Bio-energy villages, e.g. Jühnde

- The aim of the project is to use biomass which will be converted into electrical power and heat in order to supply the whole village with energy
- This is achieved through a biogas plant and a wood hogged heating system run by hogged wood or straw
- Important is to develop sustainable concepts for the growth of biomass in order to keep environmental impacts to a minimum
- More than twice the amount that is actually needed is produced
- The aim for the future is to develop an e-mobility concept for the village
- List of all bio-energy villages in Germany: <http://www.wege-zum-bioenergiesiedlung.de/index.php?id=2116&GID=0&kategorie1=1&kategorie2=1&kategorie3=1>

4.3 Ökosiedlungen

- Ecological building and living is aspired → the settlements have to fulfill several criteria including energy efficiency and a sustainable construction
- Those settlements can be characterized by an economic handling with natural resources like building material, energy, soil and space
- Important when planning are the topics energy efficiency, mobility, the usage of ecological building material, an environmental friendly supply and disposal of waste, a nature-related spatial design
- Houses are usually low-energy and zero-waste water houses
- List of all settlements in Germany: <http://oekosiedlungen.de/t3/index.php?id=61>

4.4 Soziales Dorf/ Social Village

<http://www.soziales-dorf.eu/module-landprojekt-view-pid-13.html>

- Aim is to rebuild a farm so that 80-150 people can live there

- The buildings will be changed and improved according to the newest ecological standards
- This project aims to bring the people of a community together and improve their way of living, especially the life of socially disadvantaged people
- The agriculture will be changed to organic farming in order to provide the people living and working there with fruits, vegetables and meat → this will be sold in a farm shop
- The energy supply will come to a big extent from renewable sources, mainly from solar plants

4.5 50 solar energy housing estates

<http://www.energieagentur.nrw.de/solarsiedlungen/50-solarsiedlungen-in-nrw-5527.asp>

- A project in North Rhine-Westphalia in Germany
- Aims at combining energy efficiency and the use of renewable energies in housing construction → saving of resources
- The solar-powered estates show on the level of housing states the possibilities of active and passive solar energy use and thus give support to the broad-based introduction of solar-based and energy-saving building.
- Energy requirements:
 - Passive or three-litre house
 - Hot service water treatment
 - Power generation
 → At least two requirements must be fulfilled in the construction of new houses
- for solar housing estates a limitation of CO₂ emissions from heating, hot water and domestic power was fixed at a maximum of 33 kg CO₂/m²a for new buildings and 40 kg CO₂/m²a for refurbished buildings

4.6 100 Klimaschutzsiedlungen in Nordrhein-Westfalen

<http://www.100-klimaschutzsiedlungen.de/klimaschutzsiedlungen/themen/einleitung-12244.asp>

- A project in North Rhine-Westphalia in Germany
- Aims to reduce the CO₂ emissions coming from heating
- All renewable technologies that help to reduce emissions can be used

<http://oekosiedlungen.de/t3/index.php?id=60> Link to other similar projects

4.7 Sustainable village

<http://www.sustainable-villages.com/about.php>

- Sustainable Villages is a multi-disciplinary property development and energy supply business specialising in designing and supplying new build low carbon developments, renewable energy heat and power plants and investing in new sustainable infrastructure and technology solutions
- Sustainable Villages was formed in 2004 to bring the latest sustainable design and technology to build development in the UK
- Core propositions:
 - Design and procure delivery of zero carbon homes
 - Deliver “on-site” renewable energy to service all our development sites
 - Invest in new technologies and processes that add long term value to our Settlements and Energy programme
- SVL is unique in its approach of integrating “energy” generation centres with the housing schemes it develops
- All the developments will be climate resilient, protecting residents from inevitable rises in energy costs by combining on-site renewable energy generation with the highest standards of energy efficiency in the buildings

4.8 Eco-municipality

<http://www.ecomunicipality.com/eco-municipality.html>

- A local government that has adopted ecological and social justices in its charter
- It originates from modifying systems in Sweden where more than 70 municipal governments have accepted varying principles of sustainability in their operations as well as community-wide decision making-processes
- There is a focus on community involvement and social transformation in a public agency as well as the use of a [holistic systems](#) approach
- issues of sustainability are the key to all decisions made by government
- Objectives:
 - Reduce dependence upon fossil fuels.
 - Reduce dependence upon synthetic chemicals.
 - Reduce encroachment upon nature.
 - Better meet human needs fairly and efficiently

- Communities in [North America](#) and [Europe](#), ranging in size from villages of 300 to cities of 700,000 have become eco-municipalities

4.9 Green City e.g. Freiburg

http://www.greencity.freiburg.de/servlet/PB/show/1199617_I2/GreenCity.pdf

- The 'Green City' label represents a combination of many ideas, each of which complement each other to form a consistent, unified municipal environmental and climate protection policy
- science and industry work hand in hand to achieve technical innovations, quality growth and strong, long-term employment
- the high level of environmental awareness of the residents, the city's political priorities and a deliberate policy of stimulating the economy

4.10 The national climate initiative

http://www.bmu-klimaschutzinitiative.de/en/home_i

- The German government has set itself ambitious targets for climate protection
- To reduce greenhouse gas emissions by 40 % by 2020 compared with 1990
- To facilitate an international post-2012 climate agreement with the help of the International Climate Initiative
- These targets can only be achieved if all stakeholders play their part including consumer, industry, local authorities and schools
- The BMU promotes measures which improve the energy efficiency and a further use of renewable energies
- There are five support programmes:
 - The promotion of climate protection projects in communities as well as social and cultural institutions
 - Climate protection impulse programmes for the installation of mini-CHP installations in private households and business enterprises
 - Climate protection impulse programmes for commercial refrigerating plants
 - Promotion of projects for the optimization of energetic biomass use
 - Extension of existing market incentive programmes for regenerative heat
- The BMU furthermore supports individual climate protection projects to:
 - bring forward climate-friendly technologies

- demonstrate and promote future-oriented climate protection technologies with pilot projects
- identify and reduce the restraints that prevent the implementation of climate protection technologies
- In the National Climate Initiative environmental and economic interests go hand in hand. The use and development of new technologies in companies based in Germany is supported, in order to increase competitiveness and create and secure jobs.

4.11 Eco Region

- Cities and towns committed to climate protection and aiming to reduce greenhouse gas emissions need regular emission inventories to verify and authenticate success in their local climate change and energy policy
- Climate Alliance has developed a set of rules for monitoring local CO₂ emissions
- The internet based tool ECORegion enables the calculation of municipal energy and CO₂ inventories according to these rules
- Together with member municipalities, Climate Alliance has strived to create a description of the CO₂ monitoring rules, which has validity for all members
- The tool provides series of energy and CO₂ inventories, for example per energy carrier and per sector
- It is suitable both for monitoring the overall CO₂ reduction in a municipality during a certain period and for monitoring progress within a specific sector
- own data of your region are relevant to obtain a comprehensive final inventory
- The tool is at the disposal for all local authorities

Annex 1

Implementation of management systems:

Overview of costs:¹

	ISO 50001 ²	ISO 14001 ³	EMAS ⁴	EEA ⁵	Dena- Managementsystem ⁶	ZECOS
Goal	Improvement of the energy performance	Improvement of environmental performance	Improvement of environmental performance	Improvement of environmental performance	Program for implementation-oriented energy and climate policy in cities, towns and counties	Reducing energy consumption of the municipalities in the long term in all fields
Costs (and time) for the implementation	Small: 1,5-3 person-months Medium: 3-7,5 person-months Large: 8-15 person-months Ø 8,3 person-months	Small:1-5 person-months Medium:6-11 person-months Large:12-15 person-months Ø 8,9 person-months	Small:1-6 person-months Mittel:7-12 person-months Large:13-18 person-months Ø 9,9 person-months	Timeline: ca. 80 hours Team members r. ca. 240 hours Introduction: 14-18 months		
Certification costs for first-time validation	Small: 1.600 – 2.400 € Medium:2.400 – 3.200 € Large: 6.000 – 12.000 €	Small: <2.500 – 8.500 Euro Medium: 2.500 – 12.500 Euro Large: 5.000 - >25.000 Euro	Small: <2.500 – 10.000 Euro Medium: 2.500 – 15.000 Euro Large: 5.000 - >30.000 Euro	3.570 € Program contribution 1.950 € Consultant		
Cost of external consultancy	Small: 1.500 – 10.000 € Medium:3.100 – 15.000 € Large:12.000 – 50.000 €	Small: <2.500 – 10.000 Euro Medium: <2.500 – 15.000 Euro Large: 5.000 – 40.000 Euro	Small: <2.500 – 10.000 Euro Medium: <2.500 – 15.000 Euro Large: 5.000 – 50.000 Euro	11.050 € Consultant (17 Days per 650 €)		
Costs for maintenance [€/a]	Small: 3.500 – 8.000 € Medium:9.000 – 20.000 € Large: 18.800 – 42.000 €	Small: <2.500 – 10.000 Euro Medium:<2.500 – 20.000 Euro Large: 5.000 – 75.000 Euro	Small: <2.500 – 10.000 Euro Medium:<2.500 – 20.000 Euro Large: 5.000 – 75.000 Euro	3.900 € consultant 1.500 € Program contribution		

¹:(may vary by industry and company size, but table is based on historical experience and estimates)

² Estimation by IREES

³ Based on estimates compared to EMAS (without environmental statement)

⁴ See EMAS in Germany - Evaluation, 2012, the Federal Environment Agency

⁵ See <http://www.european-energy-award.de/teilnahme> (for example: municipality with 10,000 - 50,000 inhabitants)

⁶ Until now, no data exist regarding the cost structures

Annex 2

1.1 Covenant of Mayors

http://www.covenantofmayors.eu/index_en.html

- European movement involving local and regional authorities in the fight against climate change based on a voluntary commitment; local authorities of all sizes are eligible to sign up as Covenant of Mayors Signatories
- Aim: to meet and exceed the European Union 20% CO₂ reduction objective by 2020.
- Launched by the European Commission in 2008, currently more than 4.500 signatures
- Reductions to be achieved through increased energy efficiency and development of renewable energy sources
- Results that will be achieved:
 - Creation of skilled and stable jobs, not subject to delocalization
 - A healthier environment and quality of life
 - Enhanced economic competitiveness and greater energy independence.
- Steps:
 - Step 1: Signature of the Covenant of Mayors
 - ➔ Creation of adequate administrative structures
 - Step 2: Sustainable Energy Action Plan submission
 - ➔ Outlining the key actions they plan to undertake; monitoring process
 - Step 3: Regular Submission of implementation reports
- Support from:
 - Covenant Coordinators: provide strategic guidance, financial and technical support to signatories
 - ➔ National Coordinators: national public bodies such as Energy Agencies and Ministries
 - ➔ Territorial Coordinators: decentralized authorities, such as regions, provinces or grouping of local authorities
 - Covenant Supporters: commit to maximise the impact of the initiative through promotional activities, liaison with their members and experience-sharing platforms.
 - EU institutions

Similarities to the Zecos project:

- Multi-level governance

- Participation and cooperation of various European countries → transnational cooperation
- Support (also financial) of the EU
- Promotion and support of local authorities/ communities
- Exceedance of EU set targets
- Supported by associated partners e.g. professional organizations

1.2 The Climate Alliance

<http://www.klimabuendnis.org/>

- is the European network of local authorities committed to the protection of the world's climate
- it was founded in 1990, since then more than 1.600 cities, municipalities and districts in 20 European countries have joined; NGOs and other organisations are able to join associated members
- The member cities and municipalities aim to reduce greenhouse gas emissions at their source
- Their allies in this endeavour are the Indigenous Peoples of the rainforests in the Amazon Basin
- Targets:
 - to reduce CO₂ emissions by 10% every five years
 - to halve per capita emissions by 2030 at the latest (from 1990 baseline)
 - to preserve the tropical rainforests by avoiding the use of tropical timber
 - to support projects and initiatives of the indigenous partners
- Activities:
 - Promoting the exchange of experience by conferences, workshops and publications
 - Showcasing the members' achievements
 - Providing recommendations, aids and tools for local climate change policies
 - Lobbying for improved framework conditions for local climate change policies on international, European and national level
 - Developing and coordinating European projects and campaigns
 -

1.3 GEOCARBON – Operational Global Carbon Observing System

<http://www.geocarbon.net/>

- Main objectives: to coordinate the contribution of European and international leading research institutes toward the development of an Operational Global Integrated Carbon Observation and Analysis System to provide critical support to monitoring based decision-making and related environmental treaty obligations
- Specific objectives:
 - Provide an aggregated set of harmonized global carbon data information (integrating the land, ocean, atmosphere and human dimension)
 - Develop improved Carbon Cycle Data Assimilation Systems (CCDAS)
 - Define the specifications for an operational Global Carbon Observing System
 - Provide comprehensive and synthetic information on the annual sources and sinks of CO₂ for the globe and for large ocean and land regions
 - Provide an economic assessment of the value of an enhanced Global Carbon Observing System

Similarities to the Zecos project:

- Funded by the European Union
- Monitoring and decreasing of CO₂e reduction

1.4 Sustainable Communities Leadership Academy

<http://sustainablecommunitiesleadershipacademy.org/approach/>

- builds the capacity of communities to advance, accelerate and scale-up local solutions to the global challenges of climate protection and sustainable development
- three interrelated and mutually supporting elements:
 - intensive peer-learning and training workshops
 - access to high-caliber information
 - on-going support and direct, customized assistance
- four features of the SCLA approach:
 - community-centric: local actions is vital for meeting the urgent global challenges of climate protection and sustainable development; designed to help key leaders and practitioners at the community scale to take more effective local action to increase resource efficiency, reduce climate pollution and bolster community preparedness and resilience in ways that advance social equity and economic prosperity
 - solutions-oriented: help to develop and implement practical and cost-effective climate and sustainability solutions

- collaboration-focused: Integration of economic, environmental and social goals and actions is at the heart of sustainable development
- customer-driven: workshops and resources designed and developed in close consultation with the participants; programme team consists of former senior sustainability staff from local and state governments
- areas:
 - Sustainable Communities and Economies
 - Low carbon Transportation
 - Building Energy Retrofits
 - Climate Adaptation and Resilience
 - Leadership for Sustainability

1.5 PAS 2060 – Carbon Neutrality

<http://www.carbonneutral.com/our-services/pas-2060/>

- Developed by the Carbon Neutral Company (based in New York and London)
- Carbon offsetting provides a mechanism where greenhouse emissions produced in one place are offset by emission reductions in another
- Emission reductions are achieved by preventing emissions that would otherwise have been released in a ‘business as usual’ scenario, for example through the implementation of energy efficient technology, or where emissions are removed from the atmosphere through the plantation of new forests.
- indicates that the organisation or product to which it is referring to has contributed no net greenhouse emissions to the atmosphere
- a consistent set of measures and requirements for entities for a product or service, organization, community, event or building were designed
- Four stages:
 - Measurement: undertaking of a carbon footprint
 - Reduction: reduction of emissions and development of a Carbon Management Plan (including a public commitment to outline the major aspects)
 - Offset: requires that the total amount of carbon emissions at the end of a reduction period be offset by high-quality, certified carbon credits meeting certain criteria
 - Documentation & verification: public disclosure of all the documentation that supports the carbon neutrality claim; three types of validation are possible: self validation, other party validation and third party independent validation

1.6 Energy Charter Treaty

<http://www.encharter.org/index.php?id=7>

http://europa.eu/legislation_summaries/energy/external_dimension_enlargement/l27028_en.htm

- Political initiative launched in Europe in the early 1990s
- Objectives:
 - to promote energy efficiency policies compatible with sustainable development
 - to create the conditions for encouraging producers and consumers to use energy in a more economic, efficient and environmentally sound manner
 - to encourage cooperation in the field of energy efficiency
- to strengthen the rule of law on energy issues, by creating a level playing field of rules to be observed by all participating governments, thereby mitigating risks associated with energy-related investment and trade
- each Contracting Party has to minimise environmental impacts from energy use
- formulation of clear policy aims for improving energy efficiency and reducing the energy cycle's negative environmental impact
- emphasis is not on legal obligations but rather on practical implementation of a political commitment to improve energy efficiency
- provision of good practices and a forum in which to share experiences and policy advice on energy efficiency issues
- The Energy Charter Treaty establishes a framework for international cooperation between European countries and other industrialised countries with the aim of developing the energy potential of central and Eastern European countries and of ensuring security of energy supply for the European Union
- The Protocol on energy efficiency and related environmental aspects aims to promote energy efficiency policies that are compatible with sustainable development, to encourage more efficient and sound use of energy and to promote cooperation in the field of energy efficiency

1.7 Programme for the Endorsement of Forest Certification (PEFC-Certificate)

<http://www.pefc.org/about-pefc/overview>

- The world's largest forest certification system

- PEFC is an international non-profit, non-governmental organisation dedicated to promoting Sustainable Forest Management (SFM) through independent third-party certification → the aim is to transform the way forests are managed globally
- It has an annual budget of Swiss francs 2.5 million. The activities are financed almost entirely (99%) from membership fees
- PEFC works through the entire forest supply chain to promote good practice in the forest
- This includes that natural generation is preferred and that native species are favoured in reforestation and afforestation. Forest managers are required to ensure that special key biotopes are protected, harvest levels and forest productivity are balanced, and degraded forest ecosystems are rehabilitated
- An eco-label helps customers and consumers to identify products from sustainably managed forests
- An umbrella organization working by endorsing national forest certification systems developed through multi-stakeholder processes → rigorous third-party assessment to ensure consistency with international requirements
- more than 30 endorsed national certification systems and more than 240 million hectares of certified forests
- PEFC adopts a “bottom-up” approach to governance → it builds on national members whose local expertise is complemented by the experiences of internationally-active organizations
- PEFC has three decision-making bodies:
 - The General Assembly: the highest authority of PEFC; includes both national members and international stakeholder members with voting rights, and extraordinary members as observers
 - The Board of Directors: supports the work of the General Assembly and the organization as a whole
 - The Secretary General: is responsible for the work of the PEFC Secretariat in Geneva, Switzerland. He is supported by a highly dedicated team of seven professionals.
- Membership:
 - National members: independent, national organisations established to develop and implement a PEFC system within their country
 - International Stakeholder members: international entities including NGOs and companies committed to supporting PEFC's principles
 - Extraordinary Members: international associations and organisations that support the objectives of PEFC International, and has now been discontinued

- Allows a responsible decision-making that incorporates the combined experiences and knowledge of all stakeholders

1.8 The Carbon Trust Standard

<http://www.carbontruststandard.com/pages/home>

- The Carbon Trust: a not-for-dividend company that helps organisations reduce their carbon emissions and become more resource efficient
- The Carbon Trust provides voluntary carbon certification services and carbon labelling schemes like the Carbon Trust Standard
- Developed by the Carbon Trust in 2008 to encourage good practice in carbon measurement, management and reduction by businesses and public sector organisations
- It is designed to provide a robust, objective and consistent methodology for assessing corporate carbon performance
- It builds on other existing international standards for the measurement of corporate carbon emissions (Greenhouse Gas Protocol Corporate Standard and ISO14064-1)
- Assessment is undertaken by independent third-party assessors
- An external Advisory Board provides independent advice on technical issues and informs the development of the Standard.
- Carbon Trust Standard bearers have achieved over 3.6Mt CO₂e certified reductions – equivalent to £165m in cost savings a year.
- The Carbon Trust Carbon Standard is only awarded to companies and organisations who measure and reduce their carbon emissions year on year
- Assessment Criteria
 - To provide an accurate footprint measurement
 - To demonstrate an absolute reduction of your footprint or equivalent relative efficiency improvement.
 - Demonstrate good **carbon management** to our standard including carbon governance, accounting, reduction methods and targets.
- Assessment Process
 - Assessment: Preparation of your own simple footprint or an assisted certification for collecting and presenting the data
 - Moderation: If the assessor believes your organisation meets the Standard, the assessor will pass your application for moderation. Independent moderators will review each assessment to verify the conclusions

- Certification: On successful assessment the organization will be certified and award your organisation with a certificate. The organization will then receive a Carbon Trust logo to prove the performance in cutting carbon emissions

1.9 BEP certificate

<http://www.aeecenter.org/i4a/pages/index.cfm?pageid=3364>

- Certified Business Energy Professional (BEP)
- The program awards special recognition to those business/marketing and energy professionals who have demonstrated a high level of competence and ethical fitness for business/marketing and energy management related disciplines, as well as laws governing and affecting energy professionals
- emphasis on understanding how effective energy management planning and implementation impact the "bottom line"
- Awarded by the AEE (Association of Energy Engineers)
- Objectives:
 - To raise the professional standards of those engaged in business/marketing, energy management, utility account management and customer service representative.
 - To improve the practice of energy management by encouraging energy business professionals in a continuing education program of professional development
 - To identify persons with acceptable knowledge of the principles and practices of business/marketing and energy management related disciplines and laws governing and affecting energy professionals through completing an examination and fulfilling prescribed standards of performance and conduct.
 - To award special recognition to those business/marketing and energy professionals who have demonstrated a high level of competence and ethical fitness for business/marketing and energy management
- Examination and training requirements:
 - All BEP candidates must attend one of AEE's preparatory BEP training seminars and complete and pass the four-hour written BEP examination
 - The examination questions are based on concepts and experiences basic to business/marketing and energy management on recognized tests, and on supplemental reading, covering such subjects as codes and standards, energy fundamentals, energy audits, energy economics, metering issues, performance

contracting and project financing, measurement and verification, energy-efficient equipment and applications, building systems, and procurement of energy.

- A passing score of at least 70% is required in conjunction with meeting all other eligibility requirements to become certified.
- BEP candidates have to pay a fee
- Only candidates with certain fields of study and work experience are eligible for the certificate
- All BEP candidates are required to complete either the Comprehensive 5-Day Training Program for Business Energy Professionals live seminar at one of its scheduled locations, or the web-based seminar
- The certificate must be renewed every three years

1.10 “Passive house” certificate

http://www.passivehouse-international.org/index.php?page_id=183

- *Passive House is the world’s leading standard in energy efficient construction* → it stands for quality, comfort and energy efficiency
- Such buildings are heated “passively”, making efficient use of the sun, internal heat sources and heat recovery so that conventional heating systems are rendered unnecessary throughout even the coldest of winters
- During warmer months, Passive Houses make use of passive cooling techniques such as strategic shading to keep comfortably cool.
- A Passive House requires as little as 10 percent of the energy used by typical central European building
- Passive Houses not only save money over the long term, especially in light of rising energy costs, but are surprisingly affordable to begin with. The investment in higher quality building components required by the Passive House standard is mitigated by the elimination of expensive heating and cooling systems
- Buildings meeting the strict Passive House certification criteria can be certified as Passive House buildings by any of the Passive House Institute accredited Building Certifiers operative worldwide.
- The Passive House Institute issues a checklist intended to make it easier for your building to achieve the Passive House Standard and potentially “Certified Passive House” status by outlining the most important steps in the process

- It draws particular attention to the quality control that accompanies the construction of a Passive House
- The Passive House Institute has developed a Passive House plaque, which, when affixed to the building, serves as a poignant indicator of the building's quality → Passive House authorised certifiers may distribute this plate to newly certified Passive Houses
- The use of high quality building components is a key but does not make a building a Passive House
- Careful planning of the interactions between these components is of critical importance to meeting the Passive House Standard

1.11 Eco-dynamic enterprise

<http://www.move-it.eu/de/label/eco-dynamic-enterprise-label>

- The label acknowledges enterprises in the area of Brussels that make use of ecological standards
- The level will especially be awarded for improvements regarding the waste management, for a rational energy use, mobility management etc.
- It promotes and supports companies with the implementation of international recognized environmental management systems like the ISO 14001 or the EMAS standard
- The label will be rewarded according to a three-stars-rating-system which meet the environmental performance of the organization
- The objective of the label is to encourage enterprises to
 - Continuously improve the environmental performance
 - Implement an environmental management

1.12 “Eco-event” charter

<http://www.outdoorsportsvalley.org/uploads/pdf/OSV-ECO-EVENT-CHARTER-2012.pdf>

- Events can receive an “OSV Event” label when they implement at least the five following environmental actions:
 - Reduce waste by providing specific recycle bins per type of waste as well as verify the appropriate waste disposal procedures
 - Register the event on a carpooling website and provide the address to event participants via: the event website, posters, flyers, social media, etc.

- Use tap water as much as possible via existing water fountains and use a plastic reusable cup, glass, and/or biodegradable container system
- Use an “Imprim’Vert®” eco-certified printer and recyclable paper and/or paper from sustainably managed forests (PEFC/FSC). Use the appropriate logos in all communications tools (posters, flyers, programs, etc.)
- Build awareness among event partners (employees, volunteers, participants, sponsors, media, etc.) of all environmentally friendly measures to be implemented. Provide the opportunity for local environmental protection or social welfare organizations to present their core missions
- Those events aim to share and celebrate high profile examples of green communities and Eco-Developments from across Europe

1.13 Part of the global cities covenant on climate - the Mexico City Pact

<http://www.wmsc2010.org/the-mexico-city-pact/>

- The Global Cities Covenant on Climate, “the Mexico City Pact” consists of two parts:
 - the first mentions considerations as to why cities are strategic in combating global warming
 - the second establishes a set of voluntary commitments to promote strategies and actions aimed at mitigating GHG emissions and adapting cities to the impacts of climate change.
- To establish and follow up on cities’ commitments, the signatories will establish their climate actions in carbonn Cities Climate Registry (CCCR) powered by Bonn Center for Local Climate Action and Reporting (carbonn)
 - **Section 1**, is for cities that wish to undertake mitigation and climate change adaptation measures and that by signing pledge to take the first steps, such as preparing their emissions inventory, designing and executing a Climate Action Plan, or promoting local laws that favour GHG reduction, among other measures.
 - **Section 2**, is for cities that already have climate actions in place that are measurable, reportable and verifiable (MRV)
- The CCCR will provide cities with a sound and transparent instrument for establishing links and negotiations with multilateral, regional, sub-regional and national financing agencies, by having a common methodology supported by scientific and technical criteria that validates their climate actions
- Finally, by signing the Mexico City Pact, the signatories agree to jointly cooperate with the aim of increasing direct access to international climate funding for cities
- Commitments to:

- (1) Reduce local greenhouse gas emissions voluntarily
- (2) Adopt and implement local climate mitigation measures designed to achieve our voluntary reduction targets
- (3) Develop local adaptation strategies to address the local impact of climate change
- (4) Register our emission inventories, commitments, climate mitigation and adaptation measures and actions in a measurable, reportable and verifiable manner
- (5) Seek the creation of mechanisms that allow direct access to international funding for local climate actions
- (6) Establish a Global Cities Covenant on Climate Secretariat
- (7) Promote the involvement of civil society in the fight against climate change
- (8) Advocate and seek partnerships with multilateral institutions and national governments on our local climate actions
- (9) Promote partnerships and city-to-city cooperation
- (10) Spread the message of the Global Cities Covenant on Climate and, in particular, encourage and invite other leaders of local and sub-national governments to join our climate actions

1.14 Sustainable Industrial Sites

<http://www.sustainableindustrialsites.eu/de/2.html>

- For the sustainable development of commercial premises in the Euregio Maas-Rhein region
- Some partners have been found to build future premises under sustainable aspects
- Depending on the area there are various opportunities and potentials
- The focus will be on commercial premises that do not reach today's standards that will be modernized but also on new premises with sustainable aspects right from the beginning
- By using energy efficient ways of production valuable resources can be saved
- All three aspects of sustainability will be involved – economical, ecological and social aspects
- Based on external feasibility studies for the model-like premises, recommendations will be given and experiences will be shared
- A concrete result of the project will be a written guideline for the manager and operator of commercial premises
- The aim of the project:
 - Conception and test of control mechanisms for a sustainable development

- The development of feasibility studies for the conception of exemplary premises with various thematically focus' like energetic supply specialisations in the area of wood/ sustainable building etc.
- Marketing and networking of sustainable commercial premises (in the Euregio Maas-Rhein region with other exemplary regions)

1.15 Renewable energy championship

<http://www.res-league.eu/presentation/presentation-of-the-res-champions-league>

- The RES Champions League is a network of national RES leagues, which aims at creating a positive renewable energy competition between European cities, towns and villages.
- The principles:
 - **One index:** based on installed power (or area) per inhabitant
 - **Two energies:** solar (photovoltaic and thermal) and wood (heat)
 - **One general ranking** (all sizes) and **three divisions:**
 - small cities and towns (between 5,000 and 19,999 inhabitants)
 - medium cities and towns (between 20,000 and 99,999 inhabitants)
 - large cities and towns (more than 100,000 inhabitants)
- any city, town or village can join the competition
- Elected representatives and technical staff of municipalities are **key players** who should engage their team in the competition
- Every city, town or village **registered to a national RES league** automatically competes in the RES Champions League. Leagues have already been established in Bulgaria, Czech Republic, France, Germany, Hungary and Poland. The Champions League is open to more national leagues
- Cities, towns and villages all over Europe can declare their willingness to participate in the competition by filling and sending the online registration form on the European page. However, they will not be registered to the competition and appear either in the solar ranking or the wood ranking until a national organisation sets up a national RES league in their country.

1.16 Zero Carbon Town Großschönau, Austria

<http://science.orf.at/stories/1694237/>