



Existing Methodologies and Tools for the Development and Implementation of Sustainable Energy Action Plans (SEAP)

Authors: Paolo Bertoldi, Damián Bornás Cayuela, Suvi Monni, Ronald Piers de Raveschoot



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European Commission
Joint Research Centre
Institute for Energy

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INTRODUCTION

The Joint Research Centre¹ (JRC) - Institute for Energy (IE) and Institute for Environment and Sustainability (IES) - of the European Commission has been assigned the task of scientific and technical support to the Covenant. This report is a deliverable of the agreement between the JRC and the Energy Directorate-General (DG ENER) in the framework of the Covenant of Mayors.

The Covenant of Mayors (CoM) is the commitment by signatory towns and cities to go beyond the EU objectives in terms of CO₂ reduction, through the implementation of Sustainable Energy Action plans (SEAPs). Signatories commit to submitting their local SEAPs, with concrete measures aiming at reducing the city's CO₂ and emissions within the year following adhesion. The SEAP should include a baseline CO₂ emission inventory and the CO₂ reduction target.

The aim of the present report is to provide an overview of:

- Existing methodologies/tools for the development and implementation of SEAPs by municipalities (Part I)
- Existing methodologies/tools for the elaboration of baseline CO₂ emission inventory at municipal level (Part II)

The list of the reviewed tools does not have the pretention to be exhaustive. There certainly exists other tools that may be suitable as well.

Each overview exercise is concluded by a signposting table allowing visualising the main characteristics of each of the most relevant methodologies.

The aim of this report is not to identify or impose one tool or methodology that should be followed by all cities, but to provide guidance/recommendations to help local authorities to select the tools that best suit them, according to their own needs and characteristics. It is possible that some cities may actually decide to use several tools, taking advantage of the strengths of each of them.

Although it appears that some tools may be closer than others to the rules and principles set out in the context of the CoM, it is up to the cities to decide which tool they want to use.

Based on the evaluation presented here, guidelines will be elaborated, providing detailed recommendations for SEAP elaboration and CO₂ baseline inventory. Following these guidelines will help local authorities to reach the commitments they have taken by signing the Covenant.

¹JRC's website: www.jrc.ec.europa.eu

PART I: Report on existing methodologies and tools for the development of SEAP

1. REPORT'S OBJECTIVES

This report is aimed at providing an inventory of existing methodologies for the development and implementation of Sustainable Energy Action Plans (SEAP) by municipalities. Based on the methodologies collected, it is possible to identify key aspects and issues municipalities might consider for the development of SEAP.

The purpose of this document is not only to gather information on methodologies and identifying the common and specific aspects but also to collect information on tools to overcome barriers to action on energy efficiency such the lack of awareness and to start the process towards the development of SEAP and its implementation.

Moreover the main conclusions about methodologies for sustainable energy planning presented and discussed in the workshop held in Ispra in May 2009 are included in this report.

As some of the methodologies are quite long, in this report the main elements have been summarized. The whole methodologies can be downloaded from the web pages that have been included in this report. In addition, some tools have been included as "other instruments" as they only focus on some of the components of the development and implementation of SEAP.

2. NECESSITY TO DEVELOP/USE A METHODOLOGY

Before starting the analysis of the methodologies developed for SEAP, the main reasons to develop specific methodologies are presented and discussed.

Based on the views collected from the participants of the Ispra Workshop the more common mistakes made by cities during the development and implementation phases, what are the most difficult and crucial steps and what are the needs for specific methodologies have been collected.

On the question why a specific methodology for developing and implementing SEAP is necessary, their opinions can be summarised as follows:

- § A tool aimed at making a common framework for inventory of GHG emissions, the establishment of climate goals, the development of an action and a follow-up strategy is need to reach positive and concrete results.
- § A SEAP's successful implementation is not only accomplished by proposing a list of sustainable energy measures. As a significant number of stakeholders must be included, the way to integrate them in the plan development must be specified by the methodology.
- § The SEAP does not only include energy efficiency measures, but also measures feasible, understandable and accepted by the decision makers and communicated to the outside world. Moreover the measures have to be consistent with the general and specific objectives and contribute to the planned quantitative targets.
- § A SEAP is not only a collection of measures but it is also a strategy that makes them coherent with the European, National and Local regulations.

Regarding the more common mistakes (bad practices) made during the development of plans, the opinions of the experts are:

- § A very weak political commitment.
- § The task is performed only by a person or a small group of persons instead of a broad working group composed by persons from different departments.
- § It happens that effective plans have been developed and have failed because a reporting and monitoring procedure have not been included.

- § During a round of interviews and research carried out in Sweden, the experts agreed that an unclear definition of responsibilities and the inexistence of dialogue with the stakeholders is a frequent mistake. They also mentioned the importance of adaptability of the process. Finally different groups concluded that that some issues such as energy security were never brought up during the process.²

According to the sources, the most difficult steps are:

- § One of the first difficulties is to submit the SEAP idea to the local government (elected and deputies) in a convincing way, and capture the enthusiasm of the Mayor, the best person to drive the general interest.
- § Sometimes, the measures set by the City Council are not eligible for the application to national or regional funds. Prior to decide the measures to be implemented, an analysis of the national and regional framework will be necessary.
- § To collect reliable data is often a task that experts identify as very difficult to fulfil with an acceptable level of accuracy. The data collection process is usually complex but cannot be a too long and tiresome procedure with the risk of paralysing all other activities.
- § Monitoring is a very difficult task (missing data, ambiguous interpretation of results...) unless a good monitoring plan has been developed in advance.

Finally the experts identified some crucial steps during the process. These steps have been defined as those required to lead the plan to success are:

- § Gaining the commitment of politicians and staff of the public administration. A recommendation is to invest all the required time to reach this objective before starting to develop the plan.
- § Ensuring involvement of the rest of the stakeholders.
- § It is critical to reach consensus on a general vision and on the consequent strategy. It is essential to overcome internal obstacles due to the lack of communication and collaboration among the different department of the Municipality.
- § A good coordinator with project management skills is necessary. To have a good external consulting support could be recommended in order to obtain know-how.
- § For municipalities that already have produced a SEAP the most important step is the follow up and retaining political interest for the climate issue.
- § The definition of all the possible actions among which the municipal authority could select the priority and the assessment of results.
- § The SEAP should be realistic and specially adapted to the local situation.

In addition, the experts consider that the specific situation of the municipality is the most important factor to decide how to implement the SEAP. Due to these specific situations, there is not a specific path or rules to follow to get success. The commitment and flexibility of the city council and the decision makers is critical.

3. CONCLUSIONS OF THE SEAP WORKSHOP³

On May, 2009 18th and 19th, a workshop was held in Ispra with the objective to receive feedback from different municipalities, supporting structures, experts and national energy agencies. The conclusions and observations of the first session about the methodologies for the development and implementation of SEAP have been included in this chapter.

² Linköping Studies in Science and technology. Municipal Energy planning – Scope and development method. Author: Jenny Ivner (2009)

³ A list of participants have been included in annex I.1

The aim of this session was to have an overview of the different methodologies developed by the participants that allow a successful design and implementation of Sustainable Energy Action Plans (SEAP). Here are the main outcomes of the presentations and discussions:

- § SEAPs are composed at least by the following steps: Initiation within municipality (political decision), Inventory (Analysis of energy consumption and CO₂ emissions, saving potentials), Institutionalisation (structure, staff unit), involvement of the stakeholders, Action plan (targets, priorities, action sectors, financing) and monitoring (regularly). SEAP must contain specific targets in every field in which the energy consumption and CO₂ emissions can be reduced. Timing and priorities have to be clearly indicated in the SEAP.
- § As many departments and stakeholders as possible should be involved in the development of plans. This includes not only relevant departments of the public administration but also, energy companies, citizens and companies in general. Surveys, questionnaires and roundtables with the stakeholders have been used to obtain data for the preliminary diagnosis and for the decision procedures.
- § Agreements between municipalities and public or private organizations such as national/regional energy agencies or companies are a powerful way to integrate national/regional and local climate change targets.
- § Financing mechanisms are essential for the implementation of SEAPs. These include support/consulting for drafting the SEAP as well as the actual financing of sustainable energy measures. Moreover financing mechanisms aimed at covering staff costs and dissemination activities can support the establishment of a department responsible for the development and monitoring of SEAP.
- § The baseline or starting point should be preferably set in 1990 or the year when municipalities have reliable energy consumption data (first emissions inventory).
- § Approaches are different depending on the city's priorities and the specific leverages at the disposal of the municipality. In case of own assets and services, municipalities could act directly. In case of measures related to transport sector, many municipalities rely on measures related to promotion and education of citizens, traffic ban in certain areas and the reinforcement of public transport.
- § Some municipalities from The Netherlands that currently are developing a SEAP have established a zero CO₂ emissions (CO₂ neutral cities) target as long term objectives. This element represents a reliable indicator of the success reached by the strategy and a good example of how change is built on change (see Management of Change chapter).
- § Easy measures should be implemented as soon as possible in order to motivate the stakeholders. The level of difficulty has to be low at the beginning and higher afterwards as the experience is increasing. This strategy allows maintaining and improving the motivation of the working groups. CO₂ reduction potentials and their realistic level of achievement by sector should be estimated by means of tools like SWOT, brainstorming or Delphi analysis among others.
- § Lists of measures to be implemented in municipalities are available in very friendly formats (for instance www.climatemenu.com or the CLIMATE ALLIANCE "Compendium of measures"). The availability of measures, tools and "shining experiences" are not a problem due to the large amount of them.
- § A good choice of indicators that should be linked to specific technical and/or organisational measures is critical for monitoring the impact and effects of energy plans. There is a need to standardize indicators as it has been proved that every municipality or organization uses its own set of indicator that differs from the one chosen by others cities. These differences in indicators and criterions prevent suitable comparisons.
- § City councils should firstly undertake the proposed measures in their own buildings, transport, etc, in order to show them as an example. A leadership role assumed by the Public Administration is a crucial aspect to enable behavioural changes.

- § A dissemination/communication policy is crucial to ensure the SEAP will fulfil the initial objectives. In small municipality, due to the close contact between the players, the diffusion of the core messages is easier.
- § Small municipalities usually have less data about energy consumption. This fact makes the baseline estimation more difficult.
- § Politician's roles are crucial for a successful implementation of energy plans. For this reason leadership, agreement and pacts between political parties are an important aspect to take into account before beginning with the practical implementation.
- § As some municipalities are not experts, the level of realism and simplicity of plans should be as high as possible. A set of measures should be proposed to beginner municipalities in order to allow selection according to own framework conditions and priorities.
- § Due to the close relationship and the possibility of synergies, waste and water management should be included in the same strategy that energy. Water and waste play an important role, both on the demand and supply side.
- § Quality and energy management systems are efficient means to define a reliable baseline, to ensure a continuous control and the implementation of the targets.
- § The total saving potential could be higher than the EU 20% targeting. From a team work point of view it is very important to have a realistic view of what they could achieve. Targets that are either too low or too high are not motivating.

4. SEAP METHODOLOGIES INVENTORY

A technical opinion on each methodology has been developed using a SW (Strengths/Weaknesses) analysis. In this chapter the methodologies analysed are:

- ENOVA
- PEPESEC
- BELIEF
- MODEL
- MOVING SUSTAINABLY
- SECURE
- MUSEC
- ICLEI / NATURAL CAPITALISM SOLUTIONS
- CLIMATE COMPASS
- MINNESOTA PROJECT
- EUROPEAN ENERGY AWARD

4.1. METHODOLOGY OF ENOVA

4.1.1. Contact details

Name of the Company:	ENOVA	Country:	NO
Contact name:	Nils Kristian Nakstad	e-mail:	post@enova.no
Web Address:	www.enova.no http://www.ieeprojects.net/treenity.html		

4.1.2. Basic steps of the methodology

ORGANISING THE ENERGY AND CLIMATE PLAN WORK	Political Mandate	
	Identification of critical success factors, local drivers and organisational commitment	
	Organization and foundation of the work: All relevant municipal sectors must be involved in areas where it is natural that they contribute and share partial responsibility. The general responsibility for coordinating the process should, however be assigned to the section or department that has the greatest vested interest in the plan (ref. drivers). If the initial motivation is purely political in nature, the mayor or chair of a committee may be assigned the primary responsibility for driving the process from the political aspect.	
	Energy and climate plan group	
	Agreements with local energy supplier: The area licensee or power grid company should be included in the energy and climate plan work. The area licensee knows more than any other party about power consumption and plans for the electricity grid. Correspondingly gas grid companies and district heating companies should be included where this is relevant for the purpose of the plan.	
GATHERING INFORMATION	Energy and climate data collection: The energy consumption patterns determine both the development and the dimensioning of the municipality's energy system. Energy consumption will largely guide the need for distribution networks and determine how much energy must either be produced locally or brought in from outside. Documentation of the historical development in energy consumption is therefore a key issue in connection with future planning.	
	Potential for local efficiency and energy resources	
PRACTICAL	Factual basis and	summary

DEVELOPMENT OF THE PLAN AND HOW TO PREPARE REPORTS	scenarios	energy consumption indicators
		status and development of energy consumption and related greenhouse gas emissions
		status of GHG emissions from processes, agriculture and landfills
		resources surveys
		energy conversion - generation and distribution
		the energy system
		assessment of local environmental factors
		future development, projections and scenario development
	Planning and implementing measures	Summary of measures with prioritisations and reasons
		goals, measures and activities
		General tips and aids to concretise measures
	<p>Conclusions and specific short-term measures: After a policy process, the plan could gain the status of a municipal plan, and that is when the process moves from being a planning process to being a number of measures to be implemented. It is at this juncture that many energy and climate plans have run aground, and are likely to run aground in the future. Here are a few simple rules to reduce the risk of the energy and climate plan bogging down before the work even really gets started:</p> <ol style="list-style-type: none">1. Continue and possibly expand existing measures that have already yielded a good effect in the municipality.2. Start with a few simple new measures that carry a substantial signal effect, and take the more complicated measures gradually.3. Get the schools involved.4. Build on the input that has been received from local stakeholders in the planning work.	
HOW TO PROCEED FROM PLAN TO ACTION	<p>Organization and continuous improvement: Such an evaluation should focus on specific factors linked to sustainable development, and at the same time result in a number of concrete proposals for improvements in the municipality’s activities in this area, and the various roles the municipality has in the work to reduce energy consumption and emission of greenhouse gases. Elements of the CAF model (Common Assessment Framework) or the Excellence mindset can be used in this context. At the very start of the work on the energy and climate plan, an initial self-assessment should be made of the municipality’s “ability to follow through”, based on the nine main criteria in the CAF/Excellence model. The evaluation can be done simply in the form of interviews with key persons in the municipality.</p>	

4.1.3.SW⁴ Analysis

<p>STRENGTHS</p> <ul style="list-style-type: none"> – The methodology contains example of tables allowing evaluating the CO₂ reduction potentials of the municipality. It assists in depth for example in the evaluation of the current situation and analysis of resources and subsequently in the development of measures. – The manual give an example of how the energy planning is integrated in the general strategy of 	<p>WEAKNESSES</p> <ul style="list-style-type: none"> – The key issue of reaching a political agreement between the main political parties is not developed. – The achievement of measures and the general implementation of the plan are not founded on the citizenship participation as, for example the partnership agreements are not foreseen.
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⁴ The Opportunities and Threatens analysis have not been achieved in this case

<p>the city.</p> <ul style="list-style-type: none"> – The development of the SEAP is based on the general strategy of the municipalities (research of drivers). – The technical aspects of the methodology like the baseline assessment and the implementation of measures have been carefully detailed. – References to external resources (websites and tools) 	<ul style="list-style-type: none"> – A dissemination/communication plan to the stakeholders is not foreseen. Moreover, the procedure doesn't include aspects like benchmarking or collection of successful experiences. – The guide is in some aspects very focused on the specific situation of Norway. – Monitoring and reporting are touched superficially only.
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4.1.4.Approach and general opinion

The guidebook has been prepared by ENOVA in collaboration with the Norwegian Association of Local and Regional Authorities (KS), the Norwegian Pollution Control Authority, Institute for Energy and Technology (IFE) and New Energy Performance AS (NEPAS). This is a valuable guide that should be adapted to a wider geographical area.

4.2. METHODOLOGY OF PEPESEC PROJECT

4.2.1. Contact details

Name of the Project:	PEPESEC	Country:	UK, SE, GR, ES, IT, PO
Contact name:	Per-Johan Wik A. Slachter	e-mail:	Per-johan.wik@kfsk.se A.Slatcher@manchesterdda.com
Web Address:	www.pepesecc.eu		

4.2.2. Basic steps of the methodology

BUILDING SUPPORT AND CAPACITY FOR ENERGY PLANNING	BUILDING SUPPORT	A politician with sufficient authority has to support the plan before the dissemination to the rest of politician and stakeholders. The responsible persons aimed at supporting the plan should receive information about the effect of energy consumption in order justify suitably the need of a SEAP.
	ORGANISING THE WORK	Once a decision has been taken about running the project, it will be necessary for the manager to produce a first draft of the plan. This will outline the drivers, the process, and identify all the actions needed to be undertaken, by whom, and over what timescale.
	STAKEHOLDER MAPPING	Effective engagement and involvement of the stakeholders will be critical to succeed with the process. Early stakeholder mapping of both organisations and individuals is recommended, together with identifying what their potential role will be in the production of an energy plan. a) Steering group b) Working group c) Reference Group
	ENGAGING STAKEHOLDERS	Before engagement with stakeholders it is recommended that the delivery plan include a stakeholder communications plan. A municipality will typically have professional staff within marketing or public relations department that could assist with this. Once key stakeholders have been engaged and introduced to the concept of energy planning it is recommended to bring them together to formally launch the process and 'reward' them for their positive engagement.
RESEARCHING CURRENT SITUATION	COLLATING EXISTING POLICIES AND PLANS	There will be a wide range of existing policies, strategies and action plans related to climate change, energy, transport, waste, planning, regeneration, education etc... prior to the development of the plan. At its most basic level, an energy plan could consist of an amalgam of these existing commitments.
	MUNICIPALITIES OWN DATA	The collection of data corresponding to its own energy consumption will allow proposing measures aimed at giving example. Information on trends over recent years will be valuable. Many municipalities will have existing energy managers who will be a key source of information and support in the energy planning process.
	OFFICIAL DATA	The official data available on a municipal level will vary from country to country. Not every country has official statistics on a municipal level, but it is always a good idea to exam what kind of official energy and greenhouse gas emission data that are available.
	PARTNER'S DATA	Some public services organisations (utilities) will have energy data that the municipality will not directly have sight of. This data will be valuable to build up a picture of current energy use.
	DATA FROM ENERGY COMPANIES NETWORK OPERATORS AND FUEL SUPPLIERS	Depending on the structure of energy markets and regulation, various levels of data on energy use will be available. Some of them may be deemed 'market sensitive' and therefore not be available at municipality level. Confidentially agreements with energy companies may aid the release of data required.
	RESOURCES	At this stage of the process it may be desirable to undertake a resource

	MAPPING	mapping exercise to identify potential for local generation and supply. For example this could include an assessment of public / private land available for deployment of wind turbines.
	IDENTIFYING GAPS AND FUTURE AREAS FOR RESEARCH	Data gathering should be confined at a specific schedule as laid out in the delivery plan and should be adhered to. Where data cannot be easily collated, this should be noted as a gap and the process should continue.
DATA ANALYSIS AND SCENARIO DEVELOPMENT	This is key part of the process which requires new learning for municipalities with technical assistance from competent sources. This part of the process has been produced following the work performed by PROFU and SKANE.	
DEVELOPING THE BASELINE AND FUTURE SCENARIOS	<p>The primary purpose of data collection and analysis is to understand the currently position in terms of energy supply, generation and use and develop a CO₂ baseline for the municipality. The secondary purpose of the analysis is to inform the generation of CO₂ reduction targets and identify options for achieving these.</p> <p>Planned or anticipated developments to the energy system also need to gather, analyse and quantify their impacts. This includes:</p> <ul style="list-style-type: none"> - Planned physical developments - New sustainable energy projects - Expected / anticipated legislation, financial regulation, subsidies - Expected changes to energy markets - Economic growth trends - Anticipated changes to consumer demand 	
TARGET SETTING	A starting point for target setting is gathering relevant existing EU, national, regional and local policies, strategies and plans. The locally approved documents provide a clear kick off point for the target setting process.	
ACTION PLAN DEVELOPMENT	COLLATING EXISTING AND PLANNED ACTIONS	The research and analysis of the current situation will identify a range of existing and planned actions that can be easily incorporated into the energy action plan. In this way no energy planning process ever starts from the scratch.
	IDENTIFYING NEW ACTIONS	The selection of potential activities is a key part of the process. This task will be achieved taking into account the analysis of data previously done. The technical, economical, social and political restrictions will define which measures are worth to be implemented.
	OWNERSHIP OF ACTIONS	Discussions aimed at clarifying what is expected of those responsible persons will be necessary in order to make sure that the objectives are been correctly understood. The action plan needs a coherent project management of the overall plan and the individual actions.
	PRIORITISATION OF ACTIONS	It is essential that action planning includes a coherent methodology for prioritization of projects. The basis for prioritisation of actions could be: Potential for implementation, Profitability / cost-benefit analysis, Environmental gain (e.g. CO ₂ reductions) It is recommended that 'quick wins' are identified and included to demonstrate to stakeholders that the process is succeeding soon after implementation commences.
POLITICAL APPROVAL	DEMOCRACY LEGITIMACY	Political approval of the energy plan increases the status of the process and provides democratic legitimacy to undertake the actions. However it should not be viewed as alternative to effective stakeholder engagement.
	CITIZEN INVOLVEMENT	A prerequisite to political approval is the engagement of local people. The aim of this step is to share the energy plan with citizenship and obtain support for the political approval.
	OPPORTUNITIES FOR SIGN-UP TO WIDER NETWORKS	Political approval presents the opportunity for the municipality to sign-up to national / international initiatives. These could include the Covenant of Mayors (EU), Energie Cities (EU) and the Nottingham Declaration on Climate Change (UK).
	POLITICAL SIGN-OFF	The engagement of politicians on all sides through earlier stages in the process will smooth the path to final political sign-off. Approval represents a great opportunity for media promotion of the energy plan, as well as a celebratory launch event for stakeholders.

DECISION ON PLAN AND FOLLOW UP	IMPLEMENTATION AS A PROCESS	Regular meetings of a revised steering group will be required. This event will be chaired by a respected and action-orientated person.
	SUPPORTING IMPLEMENTATION	
	REPORTING PROGRESS AND CELEBRATING SUCCESS	The need to report progress will help to engender a culture of urgency towards achieving the milestones laid out in the plan. The achievement of milestones also presents an opportunity for promoting success, demonstrating progress and forward momentum.
REVIEW AND EVALUATION	CYCLE FOR REVIEW AND REFRESHMENT	As a 'living document' this may include annual refreshment of the actions as actions are achieved and new opportunities arise. Typically an energy plan will require a full review on a cycle of 3-5 years. This is of particular importance for an area which is subject to rapid policy and technological change
	EVALUATION OF THE PROCESS	The authors recommend to use the tools provided by 3-NITY and the Organisation for local Government (UK)

4.2.3. SW Analysis

<p>STRENGTHS</p> <ul style="list-style-type: none"> – The methodology has been used in the energy planning of nine cities in Sweden and been shared with European Partners in an IEE Project. – Every step includes an example of real application. 	<p>WEAKNESSES</p> <ul style="list-style-type: none"> – The differences between the methodology to implement measures within the public and private sectors have not been distinguished. – The financial aspects like proposing an investment plan or the estimation of the available and needed resources have not been considered. – Benchmarking and share of experiences are not integrated in the procedure. – Technical steps have not been developed at all.
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4.2.4. Approach and general opinion

Some aspect like how to estimate the financial budget, guidelines related to, data collection, the project management, the communication and the follow-up have not been detailed. Thus the methodology cannot be followed by non-experienced municipalities.

4.3. METHODOLOGY OF BELIEF PROJECT

4.3.1. Contact details

Name of the Project:	BELIEF project	Countries:	BG, DE, ES, FR, GB, GR, IT, NL, PT, RO, SI, SK,
Project Coordinator:	Energie-Cités	e-mail:	jean-pierre.vallar@energie-cites.eu
Project's Web Address:	www.belief-europe.org		

4.3.2. Basic steps of the methodology

STARTING	Be aware of your current situation
	Involve all stakeholders who can help you to prepare the plan
INVOLVE THE PEOPLE YOU NEED	Invite all potential stakeholders to participate in a local energy forum to discuss the idea of the plan and its preparation
	The secret is in creating a sense of common purpose
	Sign partnership agreements with your local stakeholders
	Speak to people you have never spoken to before
	Show the citizens that you are open to their ideas
WHAT TARGETS SHOULD YOU SET?	Head high, set ambitious but realistic targets!
	Take into account other existing objectives
WHAT ACTIONS SHOULD BE PART OF YOUR PLAN?	Identify realistic and concrete actions for your plan (favourite actions)
WHO WILL IMPLEMENT THE PLAN?	Share the tasks fairly with your stakeholders
WHO WILL PAY?	The plan has to go hand in hand with an investment plan
WHAT'S THE ROLE OF THE LOCAL AUTHORITY	The local authority often takes the lead but local stakeholders are becoming more and more active
	No plan without political support at the highest level!
	No plan without your colleagues! Involve diverse municipal departments and share the information...
	Favourable local regulations make the implementation of the plan easier
HOW TO MAKE SURE YOUR PLAN IS SUCCESSFUL?	Define concrete actions and secure the funds!
	Trust but check that the plan is being implemented properly
HOW TO MAKE YOUR PLAN FAMOUS?	Tell everybody about your plan and your achievements Communicate with the local stakeholders and citizens

4.3.3. SW Analysis

STRENGTHS – The guidebook contains a very detailed methods aimed at creating, running and	WEAKNESSES – The methodology doesn't offer guidelines for gathering and monitoring data.
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<p>organising successful local energy forums.</p> <ul style="list-style-type: none"> – Large amount of shining examples that can be adapted to other municipalities. The guidebook includes many contact details. – The approach is very focused on how to gain support from the stakeholders. 	<ul style="list-style-type: none"> – Market segmentation has not been included in order to differentiate the actors. – Some important aspects related to SEAP elaboration like financial and project management are not developed sufficiently.
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4.3.4. Approach and general opinion

This methodology covers some of the main aspects of plan preparation but emphasizes the communication with the stakeholders and the dissemination of the results. There is a lack of details or explanation about some other aspects of energy planning.

4.4. Methodology of MODEL Project

4.4.1. Contact details

Name of the Project:	MODEL	Country:	7 New Member States + Croatia
Project Coordinator:	ENERGIE-CITES / Christophe Frering & Jana Cicmanova	e-mails:	christophe.frering@energie-cites.eu & jana.cicmanova@energie-cites.eu
Technical Coordinator (responsible of the methodology)	ENEFFECT / Zdravko Genchev	e-mails:	zgenchev@eneffect.bg
Project's Web Address:	www.energymodel.eu		

4.4.2. Basic steps of the methodology

Preparation Stage	STEP 1: MUNICIPAL ENERGY INFORMATION SYSTEMS (MEIS) DEVELOPMENT	<p>A MEIS consists of two layers: (a) energy database and (b) analyses and evaluations.</p> <p>(a) The database contains adequately selected and systemised objective information, which is used to evaluate the energy sector in the municipality as a whole and its individual sub-sectors or sites.</p> <p>(b) The analyses and assessments are the second layer of the MEIS. They are based mainly on the two sets of data in the energy database – technical and non-technical. The analyses of the data are performed with the aim to determine the real potential for energy efficiency improvement in individual sites, in selected target groups or entire sectors of the municipality. The analyses and assessments are the connection link between the objective information (the database) and the political objectives and tasks related to the compilation of the Municipal energy programme.</p>
	STEP 2: BUILDING CAPACITY OF ENERGY MANAGEMENT	<p>The involvement of the main players in the energy management process is a part of the building capacity process.</p> <p>Building of local capacity should be based on an objective estimation of the needs of training for each of the participants in the process. This estimation is made in result of the non-technical data of the information system.</p>
	STEP 3: DETERMINATION OF SCOPES, OBJECTIVES, PLAYERS	<p>The formulation of the objectives is a task for the top policy management of the local authority, since it should mobilise all the resources of the municipality and influence the entire future development of the local economy.</p> <p>The formulation of the objectives of the municipal energy programme is usually based on:</p> <ul style="list-style-type: none"> (a) The national policy in the field of energy and the environment (b) The municipal development strategies and policies (c) The specific circumstances and requirements of the respective municipality. <p>This approach to formulation of the objectives of the programme is based on preliminary worked out political objectives and tasks, around which the structure and contents of the programme are developed.</p>
	FIRST POLITICAL DECISION	<p>The first political decision to be made by the City Council consists of two main parts:</p> <ul style="list-style-type: none"> (a) Decision to work out an energy (or energy efficiency) programme. (b) Decision on approval of the scope and objectives of the programme. <p>It is desirable prior to the submission of the draft-decision for approval by the Municipal Council to conduct clarification work among the members of the specialized commissions within the Council. Checking the public opinion and winning public support for the decision may also contribute significantly to specifying with greater precision the proposed objectives and convincing the Municipal Council in their feasibility.</p>
Implementation	STEP 4: BASELINE DETERMINATION	<p>The baseline serves as the starting point for evaluation of the outcomes and the impact of the programme implementation, which are equal to the difference between the initial status (the baseline) and the status after the programme completion.</p>

Implementation Stage	STEP 5: FINANCIAL FRAMEWORK	This action serves to determine the financial means, which the municipality commits itself to allocate from its overall budget, as well as the means that are expected to be procured from external sources. At the same time it is necessary to identify and evaluate the financial risks of the programme, as well as the actions for local capacity building on financial matters.
	STEP 6: SELECTION OF PRIORITIES	This selection is done on the bases of the conclusions drawn from the analyses of the information system data (Step 1), that allow for the composition of an inclusive list of possible actions and projects directed to the achievement of the objectives defined in the programme. The selection of priorities should be in accordance with others local, regional, national and environmental objectives.
	STEP 7: PROGRAMME COMPOSITION	The programme is a political document, with its internal logic and sequence of statements that correspond to its main purpose. With certain conventionality the energy programme can be segmented to four major components: 1. Baseline 2. Priorities and expected results 3. Financing 4. Implementation
	SECOND POLITICAL DECISION	The aim of this step is to approve the fully developed municipal energy programme, which will be based on the first political decision. If during the development of the detailed ME Programme some modifications have been made in the goals, scope and participants, these changes are also subject to approval.
	STEP 8: ORGANIZATION OF THE IMPLEMENTATION	The first thing is to set up a Programme Management Unit (PMU) with employees of the municipal administration and/or in cooperation with a local or regional energy agency. Experimental, demonstration and pilot projects could serve as effective instruments for verification of the MEP indicators and facilitate the programme implementation. Targeted and well structured partnerships of municipalities with local businesses, households and civil society are the base for successful MEP implementation and for achievement of sustainable impact on local development. The successful communication strategy is the best mechanism for building of social confidence and mobilizing social support for the programme implementation.
	STEP 9: PROGRAMME IMPLEMENTATION	The implementation of the MEP requires appropriate capacity and experience, as well as public procedures and communication. The Municipal Energy Manager (MEM) and his/her relations with the PM (if external) should be clearly defined and endorsed by the municipal management in an official contract. Specific responsibilities of the municipal departments with the PM and the MEM should also be clearly defined and endorsed by the municipal management.
	STEP 10: MONITORING AND EVALUATION	Upon completion of the works on the implementation of each individual project, as well as upon the expiration of the period for the overall implementation of the programme, a quantified assessment may be given to the achieved results. For this purpose sufficiently long and well organised monitoring should be performed.
	THIRD POLITICAL DECISION	The third political decision adopts the programme results on the base of the monitoring & evaluation report and additional surveys (when necessary). It gives evaluation of the lessons learnt and formulates recommendations for further replication of the successful practices identified during the programme implementation. Finally, it gives valuable feed-back to the next municipal management to determine the baseline for the next mandate and identify the goals and objectives of the next planning period (for example, the next mandate of the municipal management).

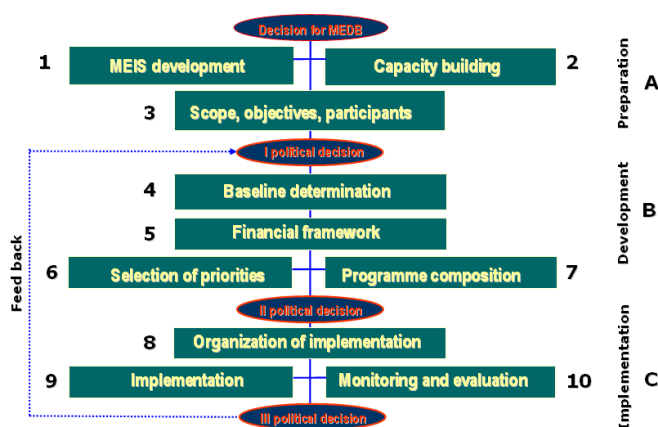
4.4.3.SW Analysis

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> – A detailed, well structured approach is proposed, with a lot of useful recommendations. – The guidebook includes a broad variety of successful experiences of European 	<ul style="list-style-type: none"> – The share of experiences with other municipalities is not an element considered by the methodology. – The vision step is not required in the methodology proposed.

municipalities. – A powerful communication strategy is included in the procedure. – A detailed inventory of available funds at European level is provided.	– The study of the framework in which the SEAP is developed doesn't analyze the drivers that made previous experiences successful.
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4.4.4.Approach and general opinion

The procedure developed by the MODEL project covers the main aspects of municipal energy planning. The communication strategy has been carefully studied. It takes into account the segmentation of the target groups, the different means of communication or the communication cycle. This method has been successfully tested during the project by 42 pilot cities in 8 Eastern European countries. The whole process has been laid out using a flow diagram:



The MODEL project will only be terminated in February 2010 and the publication of its Common Framework Methodology is foreseen.

4.5. Methodology of MOVING SUSTAINABLY PROJECT

4.5.1. Contact details

Name of the Project:	MOVING SUSTAINABLY	Country:	Consortium of Cities from NO, SE, FI, LI, RU, PO, GE, LV, EE
Project Coordinator:	Björn Grönholm	e-mail:	environment@ubc.net
Project's Web Address:	www.movingsustainably.net		

4.5.2. Basic steps of the methodology

PLANNING PROCESS	RESPONSIBILITY AND ORGANISATION	Transforming the transport system of a city into a sustainable transport system requires collaboration and coordination between those departments in the city administration that either affect or are affected by transport developments - not only the obvious transport planning and urban planning departments but also the environmental protection, economics and social integration departments must be involved. A clear organisational structure and the assignment of responsibilities are prerequisites for the successful and sustainable transformation of urban transport.
	POLICY COORDINATION THROUGH ACTOR COOPERATION	Policy coordination ensures that the various policy documents and strategies on the city, regional and national levels are coordinated and coherent. This demands a system of cooperation between different departments within the municipality and with other relevant actors. Ideally, the city's policies from one field to another are fully compatible and accordant with the goals for sustainable urban transport. Policies that contradict or hinder the achievement of SUTP (Sustainable Urban Transport Plan) goals need to be identified, discussed and even changed.
	STAKEHOLDER COOPERATION AND CITIZEN PARTICIPATION	Stakeholder cooperation is the involvement of and cooperation with citizens and other stakeholders like NGOs, businesses and other actors in a planning process. Stakeholder involvement is the starting point for stimulating the behavioural changes that are needed to complement the technical actions necessary for the implementation of a sustainable urban transport system. By involving sustainable transport opponents - like passionate car users - in stakeholder decision-making processes they are often converted into sustainable movers!
	EQUALITY AND GENDER EQUITY	Gender equality means giving both genders equal access to services and equal opportunity to influence the transport system. Use of transport differs between men and women. Although the gap has been closing during the last couple of years, men in general still exhibit more non-sustainable travel behaviour than women. Although many studies have explored the reasons, no comprehensive explanation has been found as to why women use sustainable modes to a greater extent than men. In stakeholder consultations ensure that all relevant groups of interest are equally represented.
	CAPACITY BUILDING	Although the SUTP process itself is a capacity building process, it is advisable to map the capacity that already exists within the organisations working with SUTP. This can be done as part of the baseline review. The weaknesses within the capacity of the organisation can be addressed in a periodically up-dated action plan for capacity building.
	SCOPE AND DEFINITION	The scope of the SUTP must be carefully considered against existing plans, policies and strategies to ensure that any duplication or overlap is avoided. It may be appropriate to carry out a gap analysis between existing plans etc so that the SUTP processes and principles can be adopted and integrated during the revision of existing plans and strategies. This gap analysis will advise the changes that are required (new policies, new actions etc) and ensure a smooth transparent transformation from the existing strategies to the SUTP. The relationships between the SUTP and other corporate strategies and plans should be explicitly recorded and agreed by the political leadership.

	BASELINE REVIEW	<p>A starting point for successful SUTP work is a baseline review, an honest description of the city's current transport situation. A baseline review will give the city a clear picture of the current transport situation and how sustainable it is. It will provide a review of effectiveness of existing processes to manage the transport; it will identify the drivers that influence traffic development and the impacts of traffic.</p> <p>The basic self-assessment for making the baseline review has four elements;</p> <ol style="list-style-type: none"> 1. Municipality profile 2. Drivers 3. Impacts 4. SUTP benchmark (plans, policies and actions)
	VISION	<p>The vision for sustainable urban transport in the future is the guiding star of the city's SUTP work. It points out the direction in which the city wants to head. A comparison between the vision and the city's current situation is the basis for identifying what action and development is needed to reach the desired. The vision has to be interrelated to and reached through SMART (Specific, Measurable, Achievable, Realistic, Timed) targets and objectives. Otherwise the vision is never achieved.</p>
	IDENTIFYING FINANCES	<p>The successful implementation of an SUTP requires that sufficient resources are always available for the planning process and implementation. The municipality should allocate the necessary resources in the annual budget and make the commitment in the forward (3-5 year) planning budget.</p>
IMPLEMENTATION	OBJECTIVES AND TARGETS	<p>A vision will remain nothing more than a dream unless it is accompanied by clear objectives and relevant targets which, when achieved, will make that dream a reality. Appropriately defined objectives and targets provide the basis for monitoring the SUTP.</p>
	ALLOCATING FINANCES	<p>The finance must be available to implement the actions identified in the SUTP and within the planned timeframe. Planned actions without the necessary human and financial resources are nothing but aspirations that cannot be implemented and are bound to fail.</p> <p>The 'financing plan' for each action must be explicit in describing all the costs associated with the successful implementation of the action within the agreed timeframe. Contingency resources finance and time should be included to allow for unmanaged risks. Some actions will require indemnification against delays or unexpected costs.</p>
	ASIGNMENT OF RESPONSIBILITIES	<p>If people are given responsibility, encouragement, resources and are motivated, things happen! When actions result in success, changes happen! Without all of these characteristics, the same people will see barriers and problems rather than solutions and opportunities. The SUTP needs to be managed by an organisation that supports people in their work, where there is an attitude of ongoing learning, and where mistakes and failures are opportunities for the organisation and individuals to learn - not the chance to blame someone!</p>
	ADOPTION AND APPROVAL	<p>A less ambitious and politically approved SUTP is more powerful than a highly ambitious and politically unsupported plan. It is extremely important for the successful implementation of the SUTP that it is politically accepted, the progress is monitored, and that its progress is reported to the political leadership.</p>
	MONITORING AND ASSESSMENT	<p>Monitoring and evaluation are essential management tools that provide intelligence to inform SUTP decision-taking. This intelligence provides information on the progress of policies, plans and programmes, on whether targets are achieved on time and actions achieve their planned outcomes, on costs, and with regard to changes in data sets, etc. This intelligence allows decision-makers to manage the SUTP to deliver objectives and meet targets efficiently and within budget.</p>
BETTER MOBILITY	BETTER URBAN LIVING AND BETTER MOBILITY	<ul style="list-style-type: none"> • Reduce need for transport • Strengthening sustainable transport modes • Clean and silent transport system • Rethinking good transports

4.5.3.SW Analysis

<p>STRENGTHS</p> <ul style="list-style-type: none"> – Each step of the procedure has been carefully detailed in a guidebook, including 	<p>WEAKNESSES</p> <ul style="list-style-type: none"> – The communication strategy has not been detailed at all.
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<p>instructions about the implementation.</p> <ul style="list-style-type: none"> – A check-list is give for each step. – Numerous successful experiences show how to progress with the implementation of each step. – It covers on a very effective way the involvement of the main stakeholders of the municipality. – External references (websites with good practices) 	<ul style="list-style-type: none"> – Benchmarking and share of experiences with other municipalities is not considered.
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4.5.4.Approach and general opinion

Interesting strategy that covers widely all the aspects regarding the involvement of the stakeholders, political commitment, establish a vision and the calculation and allocation of financial resources. This method has introduced an innovative perspective that considers the differences of public transport usage by men and women. The methodology has specially been developed to start a sustainable transport plan but is easily adaptable to energy planning in general.

4.6. Methodology of SECURE PROJECT

4.6.1. Contact details

Name of the Project:	SECURE	Country:	DK, EE, IE, SE
Project Coordinator:	City of Malmö – Jon Andersson	e-mail:	Jon.andersson@malmo.se
Project's Web Address:	www.secureproject.org		

4.6.2. Basic steps of the methodology

STARTING THE PROCESS	Three questions to bear in mind to start the process: <ul style="list-style-type: none">• What are the existing incentives for your city to set up an Energy Action Plan?• Is there an existing Energy Action Plan and which points need to be improved the most?• Which improvements in the energy planning of your city do you expect the Energy Action Plan to help you with?
FORMING ENERGY PARTNERSHIP	The development of energy partnerships of different stakeholders in the individual cities will engage the various actors who have been involved in different demonstration projects in the participating cities. This will help to create a holistic plan, drawing on the expertise of the relevant actors with experience of sustainable projects within the cities.
COMMUNICATION STRATEGY FOR THE SEAP	Of as much importance as to decide who needs to be involved in the planning process of the EAP is to decide who the EAP will address. It is important to be able to communicate out energy plan to all these different target groups and adapt the communication strategy to it.
PROPOSITION OF MEASURES AND DEVELOPMENT OF THE SEAP	Possibilities for a more sustainable energy use. Fiscal incentives & Control instruments for creating a sustainable energy system on a local level. Possibilities to increase the use of renewable energy sources. Plan for a sustainable building sector.

4.6.3. SW Analysis

STRENGTHS <ul style="list-style-type: none">– The guide manual available online contains the SEAP designed by the cities participating in the project.– Due to the simplicity of the process, the methodology can be used as a first approach for SEAP elaboration.	WEAKNESSES <ul style="list-style-type: none">– The monitoring and reporting aspects are not considered at all by the authors.– Important lack of details about all the aspects of the methodology.
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4.6.4. Approach and general opinion

The guide developed by the SECURE project consortium include for each step proposed the experiences of each partner during the implementation of their own SEAP. This characteristic offer very interesting possibilities to know which sectors of energy consumption they had to choose, what kind of partnership has been created and how the communication strategy was implemented. The city of Dublin achieved a public consultation for designing the action plan. During this phase, several groups exposed their own ideas about what a SEAP should include. In brief, this methodology is interesting to have a general approach for non experienced small municipalities that are looking for information about what happens when the decision to implement a SEAP has been taken.

4.7. Methodology of MUSEC

4.7.1. Contact details

Name of the Project:	MUSEC	Country:	BG, DE, DK, IT, NL
Project Coordinator:	Italian Local Agenda 21 Eriuccio Nora	e-mail:	info@musecenergy.eu
Project's Web Address:	www.musecenergy.eu		

4.7.2. Basic steps of the methodology

STARTING	BACKGROUND	Describe all projects and initiatives in the sustainable energy field having been performed so far. Deduce from this list which have been the areas of major sensitivity of the Administration. Describe the attempts of developing projects having failed in the past and try to analyse the reasons. List the partner organisations having collaborated with the Municipality in the past, and those which have never been involved.
	SUPPORT TO THE SEAP	The Councillor for environmental policies is usually the promoter and co-ordinator of the strategy, but he has to involve other colleagues dealing with key sectors for energy: urban planning, public works, maintenance of Municipal properties, economic development, as energy is a typical cross-sectoral topic and human/financial resources have to be attracted from many parts. This phase of involving all the concerned political responsible is delicate, and is best performed under the initial responsibility of the Mayor. Once the political consensus is reached, the responsible heads of the concerned offices should be convened, under initiative of the Councillor on Environmental Policy, possibly with participation of the other Councillors. This group has to periodically verify the SEC development.
	VISION	The vision for a SEC has to incorporate the long term goals and be the essence of the SEC strategy and the development towards sustainability. It shall be formulated in few words and a clear language so the SEC group members, the stakeholders and the whole community know the path to follow.
	PROCESS	Start the process by involving the most interested stakeholders and make a core group where the first plan for actions is made. Some steps must be considered: <ul style="list-style-type: none"> • The Baseline assessment and potentials • Action plan - You can learn and be inspired from many cases and experiences, but it has to be adapted to the local context. Local partnerships and advisory groups are key elements in the creation of a SEC strategy and for setting the targets. Take into account the following aspects: <ul style="list-style-type: none"> • Energy reduction is not only a public responsibility • Focus with most effort on what can be changed in the local context • Communicate your strategy and work together with local media. • Make alliances with key persons outside the community who are able to support your strategy. • Make a strategy for the long term • Make partnerships incorporating both private and public partners.
BASELINE AND POTENTIALS	BASELINE ASSESSMENT	If the availability of data is possible only at a regional or national level, the use of a top-down approach can help the accounting procedure, starting from the upper territorial level and using proxy variables to estimate the local level data. As energy consumptions are affected by different level of accuracy depending on the availability of data, it is important to establish systems to better control data availability working together with all local energy suppliers and with the major industrial and commercial energy consumers.
	POTENTIAL ASSESSMENT	The aim should be the quantification of the improvement potentials of the system through the large application of RES/RUE initiatives. This potential assessment clearly gives an idea of the maximum possible locally reachable targets.

	PROS AND CONS FACTORS	Before planning, did you make a screening of the factors that can affect the development of the plan itself? What factors can support your actions? How can you take advantage of these circumstances? What are the non-technological barriers that may halt the realization of the actions identified in the potential assessment? ... Take care that such barrier can be found not only outside the administration decision power, but that they are often present inside the administration itself.
STRATEGY AND TARGETS	TARGETS	Describe at least three target sets you want to achieve in your community taking into consideration that the targets should apply the SMART approach. They should be Specific, Measurable, Achievable, Reasonable and Timed.
	PRIORITIES	Describe the three to five priority fields you plan to develop in your community. How are these priorities motivated? How is your choice linked to the results of the baseline assessment? Why do you think that these are key fields for reaching your targets? What is the time horizon for these priorities? Is a midterm revision scheduled?
	DEVELOPMENT APPROACH	It is important to well understand the market's obstacles and the most promising development mechanisms for a specific sustainable energy sector in your community and to tune the approach of your actions to the specific situation. Financial and fiscal instruments or even ordinances and laws are other types of approaches. A good balance has to be found between creating fast success or long term effect as well as lighthouse projects or broad implementation in order to keep motivation up but also to reach a lasting change in behaviours and structures.
	ROADMAP	Your SEAP roadmap describes "how to connect the two points of the graph" with intermediate targets and milestones and the means and measures for reaching them. Describe for each phase how energy savings, energy efficiency, renewable energies or other mechanisms integrate to the planned development. Furthermore the impact of your planned SEC actions and their contribution to CO ₂ reductions can be quantified. Which growth rates did you assume for the individual technologies?
	COOPERATION STRUCTURES	The successful SEAP is based on the united efforts of the key actors at all levels of the local governance. Therefore, in the process of SEC strategy preparation representatives of different fields of expertise and interests of your community might lead the advantage.
PROJECTS	BEST PRACTICES ANALYSIS	The availability of good examples is a fundamental step for the implementation for subsequent steps in the development of sustainable energy community policies. There are always municipalities that have experience with the topic you are dealing with. In these times, with the world becoming smaller and everything getting more strongly connected, it will take less and less effort to inform yourself about the good practices of other communities.
	ORGANIZING PROJECTS	The result of your project will greatly depend on the skills of the project co-ordinator. The timing of your project is also very important. In order to determine the right time for your project, you should look for a 'window of opportunity'. Finally, pay attention to networking and involve every actor that could play a role in increasing the success of your project.
	ACTION PLAN	SEAP implementation methodology 1. Highlight the SEAP demonstration projects as a way of improving the implementation of similar projects. 2. Monitor energy, environmental and economic effects into easy accessible results. 3. Provide information to citizens, companies, employees and managers within involved public and private departments/companies, politicians. Awareness is the first crucial step towards participation, learning, education, and training - which then produces capacity building and institutional strengthening for involved stakeholders. 4. Involve citizens, politicians, city administration departments...

	FINANCING	<p>The implementation of SEAP can be financed by:</p> <ul style="list-style-type: none"> • Re-allocating resources when changing maintenance or operational missions into more energy efficient procedures. • Extra construction spending that can be saved within following years on maintenance and operational costs. • Extra costs financed from regional, national or EU funding based on specific application • ESCO financing – where the financial partner cover construction spending in exchange for receiving the savings in maintenance and operational costs. • Decided extra resources granted from City Council. • Public/private partnerships • Private investment funds
	COMMUNICATION AND SUPPORTING MEASURES	<p>Which are the target groups? Who are the key stakeholders to be involved? How can we communicate to reach common understanding, acceptance and agreements? Which information materials are needed?</p> <p>The next step is to adjust this information to an understandable reference frame for each of main important target groups.</p>
	MONITORING	<p>Total effects of the implementation of the strategy and progresses towards the defined targets should be monitored through a periodic updating of the energy balance of the whole community. Each action should be monitored by evaluating the final energy consumptions and CO₂ emissions reduction correlated to it and by evaluating its percentage weight with respect to total or sector consumptions and emissions in a business as usual evolution.</p>

4.7.3.SW Analysis

<p>STRENGTHS</p> <ul style="list-style-type: none"> – The guide collects tips and best practices that assist the implementation process. The tips are based on the practical experience of the developers. – The guidebook covers the main steps of the process from a very detailed point of view. 	<p>WEAKNESSES</p> <ul style="list-style-type: none"> – The communication and dissemination aspects haven't been developed enough.
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4.7.4.Approach and general opinion

This method collects the main steps to follow and should only be completed by communication and dissemination guidelines. This document can be easily followed by municipalities without any experience in energy planning. The guidebook available online has been structured very clearly. Each web page corresponds to a specific aspect of the methodology.

4.8. METHODOLOGY OF ICLEI / NATURAL CAPITALISM SOLUTIONS

4.8.1. Contact details

Name of the Author:	ICLEI & NATURAL CAPITALISM SOLUTIONS	Country:	USA
Project's Web Address:	www.natcapsolutions.org	e-mail:	info@natcapsolutions.org
	www.icleiusa.org		iclei-usa@iclei.org

4.8.2. Basic steps of the methodology

Why Act now?		It offers the drivers of change. The purpose of this step is to arm mayors with the ammunition they need to build political support for their leadership by making the business case, the tax-savings case, the environmental case, the public health case, etc., for climate protection.
ICLEI 5 STEPS	Develop a baseline Inventory of GHG emissions	It creates a database of the city's emissions that can be used to track growth and change in the city. It will also create a procedure for tracking city emissions in the future. It allows cities to hone in on sectors that emit the most GHGs within their territories. The identification of principal sources of emissions shows where reduction measures can have the most impact. This enables cities to prioritize actions to curtail emissions. It allows cities to take first actions within their own municipal operations or to create an action plan to deal with the community as a whole. Cities do not have to choose one or the other, but by establishing a baseline for both, cities can prioritize crucial areas to address both in municipal operations and community wide.
	Establish a target to lower emissions	<p>Targets should be as aggressive as possible while still being achievable. Some communities are ready to move rapidly to protect the climate; others will wish to move more slowly. The goal each city adopts will depend on how quickly it is ready to move.</p> <p>Recommended Process:</p> <ol style="list-style-type: none"> 1. Establish the timeframe for which to set goals. 2. Set the most aggressive goal that the political climate will allow. 3. Determine whether there is sufficient political will to simply set a goal or whether greater community support must be obtained before such a goal can be established. 4. Establish the implementation plan that the city will follow to ensure adherence with the stated goal. 5. In the event that the Mayor cannot simply declare a goal by Executive Order, outline the strategy needed to produce the necessary support. 6. Determine whether it will be necessary to establish legal findings to support inclusion of adopted goals into decision-making procedures of the city. 7. Determine the best way to obtain the information necessary to enable officials to set a goal. 8. Consider the creation of a Citizen Advisory Commission. 9. Consider whether the climate goals should be integrated with existing plans and progress indicators. 10. Consider whether to undertake a local/regional climate change risk analysis. 11. Scan Carbon Trading Opportunities. 13. Align community regulations and resources to maximize GHG reductions to the extent technologically feasible and cost-effective. 14. Establish enforceable shorthand long-term total emissions goals that estimate the implementation of maximum feasible and cost-effective reductions.
	Develop and implement a local climate action plan to implement actions that reduce GHG emissions	<p>In a democracy, four groups (local governments including their city staff, community members, organizations and activists, business leaders and citizens) will have a stake in any program to protect the climate, and should be involved in the creation of the plan. The support and enthusiasm of the community is crucial to reach the objectives.</p> <p>Set of measures proposed: Buildings, Infrastructure, Municipal Transportation, Waste, Reduction & Recycling, City Purchasing, Utilities, Businesses, Residential Homes, Residential Transportation,</p> <p>Long Term Initiatives: Urban Planning, Agriculture, Transition to Alternative Fuels, Sustainable Energy, Education, Waste Management</p>

	Measure, verify and report performance	<p>Metrics are ways of measuring the outcome of a given set of actions. Some indicators related to GHG emissions or energy consumption can be used to demonstrate the progresses of the implementation.</p> <p>Celebrating successful initiatives within a community will be critical to a city's progress in reaching its GHG reduction goals. There are many ways to celebrate accomplishments:</p> <ul style="list-style-type: none"> Positive Publicity Credibility for Environmental Achievements Support in Maintaining Momentum Networking Opportunities Recognition of a Broader Change
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4.8.3.SW Analysis

<p>STRENGTHS</p> <ul style="list-style-type: none"> – The guidebook contains a very rich collection of previous experiences in diverse sectors that will help municipalities to identify the main barriers to overcome with certain measures. – A large amount of arguments to increase awareness among the stakeholders are proposed at the beginning. – The method has been used worldwide by ICLEI. – Numerous references to external resources 	<p>WEAKNESSES</p> <ul style="list-style-type: none"> – The financial aspects are not considered. The guide doesn't contain basic instruction for this. – The communication aspect is not dealt in depth. The guide just contains some aspects of it. – Networking and benchmarking have not been included as important point to develop a SEAP.
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4.8.4.Approach and general opinion

This methodology covers the main aspects of the plan but emphasizes the communication with the stakeholders and the dissemination of the results. It has been developed by Natural Capitalism Solutions using the 5 steps methodology of ICLEI.

The guide includes detailed examples of measures to implement in different sectors. Several experiences in the United States have been collected. Several tools aimed at estimating GHG emissions have been developed by ICLEI.

4.9. Methodology CLIMATE COMPASS

4.9.1. Contact details

Name of the Project:	CLIMATE COMPASS	Countries:	DE
Project Coordinator:	Ulrike Janssen	e-mail:	u.janssen@climatealliance.org
Project's Web Address:	www.climate-compass.net		

4.9.2. Basic steps of the methodology

Step 1: Initiation	<p>First meeting of the promoter with the local contact person, clarification of local needs, interests and requirements, planning for course of meetings, identifying relevant departments and contacts in the administration.</p> <p>Awareness raising on local climate protection: the promoter presents the relevance of local climate protection for local policy makers and the administration, on important fields of action and the CLIMATE COMPASS concept in detail.</p>
Step 2: Inventory	<p>Identification of characteristics, priorities and basic conditions of the municipality as well as definition of priority tasks for the near future.</p> <p>Analysis of local and regional framework conditions for the implementation of climate protection measures. A form with central questions is provided by the promoter, he/she checks documents and material.</p> <p>Compilation of existing climate protection activities, using the CLIMATE COMPASS Compendium as checklist, check of data on the local level as well as an exemplary on-site inspection of municipal buildings, fleet or land to demonstrate the potentials for greenhouse gas reduction in the direct sphere of influence of the local authority.</p> <p>Identification of relevant decisions to be taken during the next months and during the next two years (urban planning, new settlements, retrofitting of municipal buildings, etc.).</p> <p>Check of data availability on energy production and consumption, mobility, and emissions.</p>
Step 3: Institutionalisation	<p>Setting up of adequate organisational structures: check different organisation models, fixing of structures, appointment of responsible people, agreement on regular communication between politicians and the administration.</p> <p>Constitution of a CLIMATE COMPASS working group and invitation to first meeting.</p>
Step 4: Work out an ad hoc action programme	<p>Agreement on previous results, formulation of starting conditions (mainly based on the Inventory).</p> <p>Definition of a long-term vision for the local authority's climate change policy (input, facilitation by the promoter).</p> <p>Presentation of recommended measures by the promoter, selection of priority measures taking into account previous activities and upcoming developments in the municipality.</p> <p>Identification and formulation of basic resolutions (criteria, standards, etc.) (with input from the promoter).</p> <p>Agreement on the strategic development of a comprehensive approach in local climate change policy. The action programme should be based on and linked to existing activities. It should consist of three parts:</p> <ol style="list-style-type: none"> (1) Basic, general decisions such as criteria and standards, e.g. (2) Specific priority measures, in particular "no regret"-measures that reduce resource consumption, save money and lead to other secondary benefits. The Compendium of Measures will help to identify concrete activities to be included in the action programme. (3) Commitment to start a systematic climate protection programme, based on an inventory, and on the assessment of technical and economically viable potentials for greenhouse gas emissions reduction, including recommendations for action.
Step 5: Monitoring	<p>Developing indicators</p> <p>Collecting data for CO₂ monitoring</p> <p>Cost-benefits evaluation of individual measures</p> <p>Preparatory work for future reporting</p>

The climate Compass methodology offers a "Compendium of Measures"⁵ to carry out a climate change strategy at local level. Municipalities have the possibility to choose a set of measures in those fields they are more interested and decide the level of ambition (that will help to define the indicators of achievement) for each field. The inventory and monitoring of CO₂ emissions are supported by the ECO2Region tool described in the second part of this document.

4.9.3.SW Analysis

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> – The guide developed by CA contains a "compendium of measures" aimed at helping municipalities to make a choice among them and establishing their own level of ambition. This tool can be used by expert and non-expert municipalities as the lowest and highest levels are adapted to both situations. 	<ul style="list-style-type: none"> – The communication and dissemination aspects have not been fully developed. – Some of the information is only available for the members of CLIMATE ALLIANCE. – Following the available information this methodology seems very focused and detailed on the measures to be implemented.

4.9.4.Approach and general opinion

The Climate Compass tool has been designed to help municipalities to start sustainable measures related to seven topics following different levels of ambition (from "getting started" to "taking the lead"). This instrument has been completed with "implementation instructions" included in the 5 steps table. The development of Climate Compass was based on the main roles of local authorities in local climate change policies.

⁵ http://www.climate-compass.net/fileadmin/cc/dokumente/Compendium/CC_compendium_of_measures_en.pdf There are also case studies based on the different areas of action relevant for the climate plan http://www.climate-compass.net/_cases.html

4.10. METHODOLOGY OF THE MINNESOTA PROJECT & UNIVERSITY OF MINNESOTA

4.10.1. Contact details

Name of the Project:	MINNESOTA PROJECT	Countries:	USA
Project Coordinator:	Lola Schoenrich	e-mail:	lschoenrich@mnproject.org
Project's Web Address:	http://www.state.mn.us/mn/externalDocs/Commerce/Resource_Manual_060404115637_CERTs2.pdf		

4.10.2. Basic steps of the methodology

AGREE ON COMMON GOALS	<p>The organizers of the community planning effort must begin by defining their common goals. Is the project about conservation in public buildings, about finding the most appropriate renewable energy demonstration project for the community, about developing guidelines for assessing new power plant or power line proposals, or about something else?</p> <p>Defining the goals will help to define the universe of interested people in the community and determine the stakeholders that must be involved for the project to succeed.</p>
RAISE COMMUNITY AWARENESS	<p>The next step is reaching out to identified stakeholders and others in the community and educating them about the energy issues and the contemplated planning process.</p> <p>Initial community outreach should be designed to spark interest in the issue, lay the groundwork for the planning process, and identify the people most interested in the issues and in the planning process. Ongoing community awareness is critical as well.</p> <p>Project leaders must make sure that others in the community know what is happening throughout the process. There are many ways to accomplish this – signs advertising meetings, regular stories about the planning effort in the local paper, a regular column or letters to the editor, meetings on the local cable access station, and speaking engagements to local groups and clubs.</p>
FORM A STEERING COMMITTEE	<p>The most successful community planning efforts involve people with a wide range of interests. A wide range of perspectives is most likely to result in proposals that meet all community needs. More diverse groups also hold greater political and fiscal leverage when it comes to getting approval for final plans. The more bridges that can be built, and the more perspectives that can be brought together, the more likely communities are to achieve success. It is a good idea to look for people from within the stakeholder groups who are interested in and committed to your goals and who have respect and influence within their own organization. You will be counting on the people around your table to convince others in the community that all options were considered and that the final plan is a good one.</p>
GATHER AND EXAMINE INFORMATION AND DATA	<p>Every planning process has a fact-finding element. The project goals will, of course, dictate the needed information. If conservation is a goal, information about community and building energy usage and conservation potential will be needed. If the goal is developing renewable energy, a comprehensive resource assessment will identify the potential energy resources available and their economic feasibility. This is the place to involve technical experts: experts from within the community, utilities, University experts, state agency assistance, and consultants.</p>
START WITH EFFICIENCY UPGRADES AND CONSERVATION	<p>Before considering any alternative energy project, be sure to explore energy efficiency opportunities within the community.</p>
DEVELOP AN ACTION PLAN	<p>Once the information about technologies and the facts about energy use and resource options have been analyzed, it is time to develop an action plan. The action plan will define the scope of the project. It should detail what will be done, why, how, and by whom. The action plan will include specific goals, objectives, actions, timelines, and responsibilities. It will identify costs, revenues, financing and include the business plan for the project.</p>

TURN THE PLAN INTO ACTION	If the plan has several components, make sure that there are visible achievements early on. Even small, successful, visible steps build a culture of success. They build momentum, bring more people into the effort, and encourage others to support the work. If one of the first steps is erecting a wind monitoring station, for example, make sure that the event is well publicized and well reported. Involve community volunteers if appropriate and possible. Making the project happen will include getting bids for technology, finding grants, loans or other financing, construction, interconnection, resolving unexpected problems, and finally, bringing the project on line.
EVALUATE AND BUILD ON SUCCESS	Be sure to take time to reflect on what worked well and what could be improved next time. If there were problems, identify the barriers and look for creative ways to overcome them. First look to people from within the community who can help to resolve the problems and then look for outside technical help if it is needed. Learn from successes and from mistakes and share both widely within and beyond the community.

4.10.3. SW Analysis

STRENGTHS <ul style="list-style-type: none"> – General overview of the process to develop and implement a SEAP. – Very focused in the problematic aspect of getting support and awareness. – The guidebook includes interesting previous experiences. – A detailed description of the role of each stakeholder. 	WEAKNESSES <ul style="list-style-type: none"> – The information available for each step is very scarce if the idea is to follow the instruction from the beginning to the end. – Some important aspect like financial issues of monitoring and reporting are not considered by the authors.
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4.10.4. Approach and general opinion

The guidebook has been developed by the Minnesota project with the scientific support of the University of Minnesota. In this sense, it takes into account a social and scientific perspective. For a suitable use of the guidebook, the contents should include more details about the methodology.

4.11. EUROPEAN ENERGY AWARD Methodology

4.11.1. Contact details

Name of the Project:	EUROPEAN ENERGY AWARD®	Country:	more than 400 municipalities in DE, FR, IT, AT, IE, NL, CZ, LT, CH, LI
Project Coordinator:	Forum European Energy Award e. V Cornelia Brandes	e-mail:	info@european-energy-award.org
Project's Web Address:	www.european-energy-award.org		

4.11.2. Basic steps of the methodology

Phase	Recommended STEP
Phase 1 Introduction	Commitment (by the city council) concerning the reduction of energy consumption and the increasing of renewable energies and energy efficiency by participating in the eea-programme
	Defining long term aims (energy autarchy, 20-20-20 etc.)
	Choosing an accredited EEA-advisor for accompanying the process
	Forming an energy team with sufficient human and financial resources in the municipality (administration, politicians, interested citizens, energy experts etc.)
	Information and including of the citizens into the process
Phase 2 Initial energy review	Collecting all information during an assessment referring to a set of 90 measures which targets six relevant areas of activity in the influence of the municipality: 1) Development, Regional Planning 2) Communal Buildings, Facilities 3) Supply, Disposal 4) Mobility 5) Internal Structure 6) Communication, Co-operation/Multiplicative measures
	Preparing an initial energy review to know the starting point of action and running through an assessment of the already implemented measures by the standardised assessment tool: - Evaluation of the "implementation quality" by calculating points - Evaluation of the "result quality" by calculating CO ₂ -reduction and energy reduction (optional)
	Preparing a CO ₂ balance, (not mandatory); possible by top-down approach in combination with e.g. ECO2-Region tool or bilane carbon or by bottom-up with the into the assessment tool integrated balancing tool.
Phase 3 energy policy program	Definition of mid term aims (4 years energy action plan)
	Preparing an annual energy action plan for ensuring the implementation of further measures to reach the short term and long term aims (incl. responsibilities, human and financial resources, time frame)
	Decision-making of the energy action plan by the city council
Phase 4 Implementatio n of measures	Implementation of measures in the six areas: 1) Development, Regional Planning 2) Communal Buildings, Facilities 3) Supply, Disposal 4) Mobility 5) Internal Structure 6) Communication, Co-operation/Multiplicative measures

Phase	Recommended STEP
Phase 5 Control of success	Control of success of the implemented measures by an annual energy review with the assessment tool : <ul style="list-style-type: none"> - Evaluation of the new "implementation quality" by calculating points - Evaluation of the new "result quality" by calculating additional CO₂-reduction and energy reduction (optional)
	Preparing an eea-report for the city council, the civil society/citizens etc. showing the success of the process (also part of the external audit documents)
	Adaptation of the (annual) energy action plan
	Sharing the experience / Benchmarking with other (eea-) municipalities on regional, national and international level
Phase 6 certification and awarding	External audit, as soon as the municipality has implemented more than 50% of all possible measures Awarding ceremonies with politicians provide good PR

4.11.3. SW Analysis

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> – Very focused on the success of the implementation phase, with annual review and subsequent adaptation of the plan – The process is supported by an experienced energy advisor – Good catalogue of measures with evaluation tool – Numerous tools/best practice examples available in different languages – Independent review of the success leading to an award – Continuous improvement of the tools and methodologies. This ensures the availability of tools and support in the future. – Existence of a forum where the participating cities are represented and which guarantees the quality management and standardisation on European level – Objective external evaluation is guaranteed by an external auditor 	<ul style="list-style-type: none"> – Tools and guidance documents are not publicly available (members only) – Cities have to pay a licence fee to participate – The quality of the evaluation strongly depends on the skills of the energy advisors – The availability of some tools/best practice examples may depend on the country/language

4.11.4. Approach and general opinion

The European Energy Award®, existing for already more than 10 years, is a certification and quality management system for cities and communities in Europe willing to improve energy efficiency at the local level. It allows municipalities to identify strengths, weaknesses and potential for improvement and, above all, implement effectively energy efficient measures. A catalogue of measures and an evaluation tool allow evaluating and selecting appropriate measures for the SEAP. The success of a municipality's efforts is made visible by an award. The standardized assessment permits a benchmarking between communities. It allows member cities to share their experiences and expertise. It is an excellent implementation tool in the context of the CoM.

5. SUCCESSFUL EXAMPLES OF SEAP METHODOLOGIES

- A. **FREIBURG:** The energy policy in Freiburg has been evolving since 1986 from an energy supply concept to a climate protection concept that was recently replaced by a new strategy. Regarding the energy supply concept, the ways to reach the objectives was energy saving, energy efficiency and the use of renewable energy sources. In 1996, the City of Freiburg set the target to reduce the emissions of CO₂ by 25% in 2010 using as baseline year 1992. The objective includes the emissions due to traffic. In 2007, the emissions had been cut by 14%. This year, a new strategy aimed at reducing the emissions by 40% in 2030 was approved. The reduction's potentials for each sector to reach these objectives are: commerce trade 30%, households 25%, industry 21%, traffic 20% and City of Freiburg 3%.

A Steering Committee composed by the City of Freiburg, City's companies, energy agency, Chamber of Industry and Trade and, in general, the main stakeholders, meets twice a year in order to revise progresses of the working groups and monitor the evolution of the plan. The long-term strategy must be underpinned by detailed and budgeted short term actions. According to the City, the most important steps to develop a SEAP are: analysis of the present situation (present and future energy and CO₂ balance and estimation reduction potentials), strategy to reach targets (definition of targets, measures and implementation plan) and a regular monitoring of the plan. Moreover, other aspects such as vision, political commitment, an implementation structure and financial resources are also required to attain the objectives. The commitment of national/EU is also crucial to succeed.

www.stadt.freiburg.de

- B. **HAMBURG:** 3 goals of CO₂ emissions reduction since 1990. 20% in 2012, 40% in 2020 and 80% in 2050. The way to reach these objectives is through key instruments related to awareness (education), renewable energy sources (solar thermal heating, photovoltaic installations and an own energy supply company based on renewable energies), efficiency in production/engines and reduction in energy consumption (subsidies for thermal insulation, improvement of efficiency by companies and stakeholder's commitment to reduce their energy consumption). The city is investing 25 M€ per year (~13,8 €inhabitant). The reduction between 1990 and 2004 was 12,5%. For installation of renewable energies Hamburg cooperates with the surroundings. International networking helps to improve the SEAP due to benchmarking experiences.

www.hamburg.de

- C. **LAUSANNE:** many measures similar to the case of Hamburg have been undertaken to reduce energy consumption. Following ISO 9001 and 14001 labels, Lausanne use the European Energy Award instruments for energy management. The long term objectives on the Municipal territory are a reduction of 50% of the energy consumption and 50% of renewable energies in 2050.

www.lausanne.ch

- D. **THE CLIMATE MUNICIPALITIES:** According to the climate coaching method, a climate strategy is based on four cornerstones:

- *inventory* of greenhouse gas emissions and energy use
- *climate goals* for how to decrease emissions and energy use within the municipality
- *action plan* for how to decrease emissions
- *follow up* of goals and action plan

An important part of an active climate work is that some employees within the municipality have time to work with the climate strategy. A common internal organisation is to have a *working team* composed of people from different departments, a *coordinator* that leads the group and coordinates the climate strategy work and, finally, a *leading group* of politicians that decide which actions will be carried out. The climate coach visited the coordinators in the municipalities in the beginning of the project and performed an initial requirement analysis. Thereafter, on basis of the needs and conditions in the municipality, the continuation of the work was structured. The municipalities had varying initial status and hence the support from the climate coach varied a lot. In some municipalities where the

political support was good but the know-how was lacking, the support was focused on the working process and how to get good involvement from employee in the action plan. In other municipalities the support was focus on climate statistics or identifying actions in the action plan. In contrast to the work of many external consultants, working alone and leaving a finished document (climate strategy or energy action plan), the core here is to create involvement among as many employees as possible by letting the municipality do most of the work. Two years after the project had started there were at least ten municipalities that had put together a climate strategy, furthermore seven had a remittance and the rest had started a climate process.

www.klimatkommunerna.se

- E. **HELSINKI:** the City Council is committed with the national government in the implementation of the EU Energy Services Directive. The objective is a 9% reduction of energy consumption between 2008 and 2016 and 20% by 2020. Big efforts have been dedicated to low energy construction and energy audits because they are the most effective means for energy efficiency. The execution of measures is carried out by the municipality, Public Works Department, in accordance with the agreement. Measures are applied to new buildings and the renovation of old ones.

www.hel.fi

- F. **ALMADA:** due to the initial analysis of situation, the SEAP of Almada has focused the measures in the reduction of energy consumption in transport and buildings. An inventory of GHG as first step of the process permitted an identification of priorities and the definition of a strategic framework with measures and policies. Since the beginning Almada has been in touch with other entities that allow making synergies, obtaining information from benchmarking and being present in discussion groups.

www.m-almada.pt

- G. **SOFIA ENERGY AGENCY:** A local SEAP for a district of Sofia was developed under BELIEF Intelligent Energy- Europe Project co-financed by the EC. Local authorities found out “new opportunities to improve the environment, and the conditions in the public buildings and areas in Zona B5 via the use of local energy resources and energy efficient technologies”. A Local Intelligent Energy Forum was set up to involve stakeholders and citizens in defining and prioritizing projects for energy efficiency measures and RES for the area. During six forum sessions for a period of 9 months all technical and financial aspects were discussed and an implementation plan was adopted. The local forum has turned into a permanent body for monitoring of SEAP implementation.

www.sofena.com

- H. **MÜNCHEN:** With the help of the Oeko Institut of Freiburg, the city has identified 10 fields with a large CO₂ emissions reduction potential. Behaviour changes of citizens and companies could avoid ~24% of the whole potential. The SEAP's objectives are a reduction of 50% for the period 1990-2030. Every municipal department is involved in the implementation of SEAP and responsible for a set of measures implementation. The organization of SEAP implementation is headed by a Steering committee which takes decisions advised by the Project Committee that head 7 working groups responsible for the development and implementation of CO₂ reduction measures. These working groups are working on solutions regarding technical, financial, and legal barriers.

www.muenchen.de

6. OTHER INSTRUMENTS

In this chapter some interesting tools that couldn't be labelled as "methodology" have been gathered. These tools have been previously used with positive results by the authors during the development and implementation of SEAP in their own countries.

6.1. SENTERNOVEM

SENTERNOVEM is a governmental innovation and environmental agency based in The Netherlands. This entity has been working with municipalities as a supporting structure in the development of their own SEAP. The support offered by SENTERNOVEM is laid on a voluntary agreement (Climate Covenant) in which the municipalities acquire the commitment to intensify local climate policy.

The signature of the Covenant allows the cities to receive subsidies from the Central Government. These subsidies are calculated taking into account the number of inhabitants and the surface of the municipality. The money received from subsidy can be allocated in personal costs, communication and research.

6.1.1. Contact details

Name of the Entity:	SENTERNOVEM	Country:	NL
Project Coordinator:	Frank Mathissen	e-mail:	f.mathissen@senternovem.nl
Project's Web Address:	www.senternovem.nl		

6.1.2. Process

The process proposed by SENTERNOVEM is composed by 5 steps in which they support the municipality during the implementation from a consulting company point of view:

1. **Stimulating the municipality:** some workshops and presentations are organised by SENTERNOVEM with the aim to show the risk of climate change and the possibilities offered by a low GHG emissions strategy. Moreover, one to one contact are established between the agency and the municipality where the specific aspect of each municipality. Each municipality is assisted by an advisor from the agency.
2. **Climate Scan:** The municipality set the starting point of emissions and energy consumption. At this stage a framework study is performed in order to consider specific measures to be applied. The previous ongoing or implemented measures and their progress are identified.
3. **Setting the ambition of the chosen themes:** a set of measures to implement is proposed from the ClimateMenu catalogue developed by SENTERNOVEM. Once the measures are accepted, the municipality can choose the level of ambition in each field. Four levels, from "preparation" to "innovative" are available. Moreover some measures are complemented with successful examples that include a general description, the outcome, contact details and the costs of the initiative.
4. **Implementation and project plan for a period of 4 years:** the chosen measures are carefully developed in a specific document.
5. **Monitoring:** municipalities are obliged by the Covenant signed with SENTERNOVEM to report every year on the progresses and at the end of the project plan period. The amount of subsidies is decided on the bases of the report.

6.2. OURSOUTHWEST'S ENERGY MANAGEMENT GUIDE

6.2.1. Contact details

Name of the project coordinator:	Our South West Energy Management Guide	Country:	UK
Contact Name:	Phil Harding	e-mail:	phil.harding@gosw.gsi.gov.uk

Project's Web Address: http://www.oursouthwest.com/SusBus/susbus9/eemguide.htm#step2
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6.2.2. Oursouthwest tools

The UK Government office for the Southwest has developed a tool aimed at helping municipalities to implementing a SEAP on their own. A short method has been developed by this office.

- Step 1. Commitment
- Step 2. Understand (establish the facts)
- Step 3. Plan and organise
- Step 4. Act
- Step 5. Control, monitor & review

The guidebook developed in the framework of this project contains a big amount of information focused on how to produce change in behaviour and getting support for the project. This document also contains a catalogue of worst practice for each step to achieve during the process. Reading this part of the document is highly recommended.

6.3. 3-NITY EUROPEAN PROJECT

6.3.1. Contact details

Name of the project coordinator:	NEPAS – Institute for Energy Technology	Country:	NO, SE, GR, BE, NL, PO, SL, PT
Contact Name:	Hans Jacob Mydske	e-mail:	mydske@nepas.no
Project's Web Address: www.ieepprojects.net/treenity.html			

6.3.2. 3-NITY tools

The project's partners have developed a simple inter-linked Excel sheet that collects several sustainable measures and activities. This table has been designed following a project management approach. For each measure, it requires a responsible person, the actors that will take part in the project and the start and stop dates. The mentioned tool considers topics like energy efficiency measures and Energy supply with district heating and renewable energies.

Moreover, the 3-NITY project, has adapted the EFQM (European Foundation for Quality Management) model to sustainable energy planning at a local level. This model allows the city council to know whether the stakeholders are focused on sustainability. The 9 EFQM criteria in municipalities, of SUSTAINABLE EXCELLENCE are:

- Leadership
- Policy and Strategy
- People
- Partnership and Resources
- Processes
- Customer/Citizen Results
- People Results
- Society Results
- Key Performance Results

This tool can be used by the signatories to monitor the progress of a sustainable culture in the city. In addition, one of the most relevant outputs of this project is the Regional Energy Analysing Model (REAM) software. This software is aimed at helping municipalities to simulate the behaviour of stationary (it doesn't include the transport sector) energy systems along different years considering the measures undertaken by the municipality. This software can be downloaded from www.reamsystem.eu/Ream1029.zip

7. CONCLUSIONS: MAIN ASPECTS OF THE METHODOLOGIES

As shown in the methodologies previously analysed, it exists a general consensus about the fact that some steps should be achieved to reach success with the SEAP. These points have been gathered in order to use them as a basis for the design of a "Standard Successful Methodology". Some original, innovative or well-detailed tools/ideas proposed by the experts consulted are included in the step by step process.

- § Obtain political commitment and make it strong to prevent political changes
- § Gain support from the main stakeholders
 - Reach an agreement with the local energy suppliers and establish strong partnerships
 - Build capacity of energy and project management
 - § Steering Group
 - § Reference Group
 - § Working Groups
 - Create cooperation structure composed by representatives of the stakeholders and experts from diverse sectors
 - Make a segmentation of the stakeholders and define how to integrate them
 - Collect ideas from the citizens/companies
- § Get commitment from the actor of the plan
 - Create a sense of common purpose
 - Give example by reducing the energy consumption in your own buildings
- § Institutionalisation (structure, staff unit)
 - Creating a CoM department /office with appropriate competence and budget
 - Adjustment / optimisation of internal administrative structures and processes
 - Appoint a contact person and assign responsibilities
- § Establish a Vision that points out the path to follow by the city
- § Energy and climate data gathering from measures, surveys or statistics
- § Baseline Assessment
 - Estimation of the present energy consumption and GHG emissions
 - Projection of future scenarios
- § Analysis of the current framework
 - Collection of favourable and adverse regulations
 - Identification of success factors in previous experiences
 - Identification of local drivers
 - Consider other existing objectives
- § Estimation of existing potentials for energy efficiency, local energy resources and reduction in the sectors the SEAP will be applied in
- § Assessment of financial resources
 - Analysis of the financial framework
 - Elaborate an investment plan
 - Allocate financial resources according to the priorities
 - Identify possible external financial companies, ESCOs, EU funds...
- § Implement the Sustainable Energy Action plan
 - Set objectives and targets
 - Make a prospective of best practices
 - Propose measures related to energy efficiency and renewable energies
 - Identify favourite action for the plan and select priorities
 - Appoint a contact person and assign responsibilities for each project
 - Organize the timing of each project

- § Share experiences with other municipalities and stakeholders
 - Benchmarking
 - Climate Change or Energy Efficiency Associations
- § Monitoring and reporting progresses of the plan
 - Choose an efficient set of indicators
 - Use a quality management tool
- § Design a communication strategy and promote your activities

8. SEAP SIGNPOSTING SYSTEM

The purpose of the signposting system is to offer an overview of the most suitable SEAP methodologies, in order to allow the cities to identify the most appropriate ones considering their particular context.

The signposting system has been divided into four different parts:

- § An appreciation concerning the quality of the guidance provided by the methodology with respect to the various steps in the overall SEAP elaboration process. For each step, the appreciation is given by a score, from " * * * * * " (excellent) To " – " (absent). See legend.
- § An appreciation concerning the quality of the guidance with respect to the conception, selection and evaluation of appropriate measures, in the various sectors and fields of action potentially covered by the SEAPs. The score system is similar than for the previous topic. Not all methodologies and tools provide such guidance, some of them concentrating on the process only.
- § Other relevant information (language(s) available, etc.).
- § A synthesis with qualitative information about each methodology, which summarises the information presented in section 4 (inventory of methodologies) and in the first part of the signposting system.

Signposting of SEAP methodologies

Page 1 : overview

1. Guidance provided for the overall SEAP elaboration process

1.1 Preparing

Political commitment and leadership
Identification of key actors
Participation of stakeholders
Collaborations, partnerships
Adjustment / optimisation of internal administrative structures and processes

MODEL	BELIEF	MOVING SUSTAINABLY	ENOVA / 3-NTY	ICLEI / NATURAL CAPITALISM	MUSEC	CLIMATE COMPASS	MINNESOTA PROJECT	PEPESEC	EUROPEAN ENERGY AWARD
xxxx	xx	xxx	xx	xx	xx	x	-	xxx	x
x	xxx	xxx	x	xxx	x	xx	xxx	xxx	xx
x	xxxx	xxxx	xx	xxx	x	xx	xxx	xxx	xxx
xx	xxx	xx	x	xx	x	x	x	xxx	xxx
xx	xxx	xx	xx	xx	-	-	xx	xxx	xxx

1.2 Planning

Data collection and modelling
Diagnosis (present situation, barriers to be removed)
Potential for improvement in terms of energy and CO2 emissions
Definition of priorities (strategy)
Target setting
Evaluation of measures (cost, energy and CO2 savings)
Elaboration of the plan (selection of the appropriate measures in order to reach the targets)
Risk management
Evaluation and allocation of human resources
Cost evaluation and budget
Financing

xxxx	x	xx	xxx	xxx	xxx	x	x	xxx	xxx
xxxx	x	xxx	xx	-	-	-	xx	xx	xxx
x	-	x	xxx	x	xx	-	-	xx	xxx
xxxx	x	xxx	xxx	xx	xxx	-	xx	x	xxx
xx	xx	xxx	xxx	xxx	xxx	xxx	-	xx	xx
xx	-	x	x	-	-	-	-	xx	xx
xx	x	x	xxx	xx	xxx	xxx	xxx	-	xxxx
-	-	-	-	x	-	-	-	xxx	-
x	x	xxx	x	x	-	-	-	-	xx
xx	x	xx	xxx	x	x	-	-	-	xx
xxxxx	x	xxx	x	x	xx	-	-	-	xx

1.3 Implementation and monitoring

Implementation phase - project management
Training (project management, technical,...)
Communication
Production of indicators and monitoring
Follow-up (continuous improvement)
Assessment of actual energy/CO2 savings
Quality audit (internal / external)

xx	x	xx	x	x	x	-	x	x	xxx
xx	x	xx	x	xx	-	xx	-	-	xxx
xxxx	xxx	-	x	xx	xx	xx	xxx	-	xxx
xx	x	xxx	x	xxx	xxxx	xxxx	-	-	xxxx
xx	x	xx	x	xx	xx	-	x	xxx	xxx
x	-	xx	-	xx	xxx	xxx	-	-	xxx
-	-	-	-	-	-	-	-	-	xxxx

2. Advise on conception, selection and evaluation of appropriate measures

Buildings
Industry
Transport
Renewables & CHP
Land use planning
Public procurement
Working with the citizens and stakeholders
Other

-	-	-	xx	xxxx	-	xxx	-	-	xxxx
-	-	-	xx	xx	-	xxx	-	-	xxx
-	-	xxx	xx	xxx	-	xxx	-	-	xxx
-	-	-	xxx	xxx	-	xxx	xxx	-	xxx
-	-	-	-	xx	-	xxx	-	-	xxx
-	-	-	-	-	-	xxxx	-	-	xxx
-	-	-	-	xxx	-	xxx	-	-	xxx
-	-	-	-	xxx	-	-	-	-	xxx

3. Other relevant information

Support available	Yes, but only for the already participating cities	yes, for participating cities (20)	yes, possibility to ask questions	yes, ENOVA provides support and consultation (not free)	yes, possibility to ask questions	no	yes, but mainly for participating cities	no	no	yes, for members only
Languages available	EN, CS, LT, LV, PL, SL, BG, RO, HR	EN, FR, IT, summary available in other languages	EN, DE, SE, FI, PL, EE, LV, LT	EN	EN	EN	EN-DE-ES-FR, other (depending on the tools)	EN	EN	DE, FR, UK, IT, PL (CZ, SK being updated)
Status (ongoing, complete)	Ongoing	complete	complete	complete	complete	Complete	Complete but some documents still as "draft"	Complete	Ongoing	continuous improvement of the tools and methods

Legend :

***** = Handled in great details (exhaustive methodology/tool or clear illustration by many examples). EXCELLENT

**** = Handled in details (methodology/tool or clear illustration by examples). VERY GOOD

*** = relevant recommendations are provided, with some examples. GOOD

** = some general recommendations are provided, with few or no practical examples. AVERAGE

* = just considered as a necessary/useful step. POOR

= not considered in this methodology. ABSENT

Signposting of SEAP methodologies

Page 2: Summary table

MODEL	The MODEL ("Management of Domains Related to Energy in Local Authorities") project has developed guidelines and recommendations which covers the main aspects of the SEAP elaboration process. A detailed, well structured approach is proposed, with a lot of useful recommendations. An elaborated communication strategy is provided. A separate quite detailed inventory of available funds at European level is available. Some elements are covered with less detail (establishment of a vision, search for drivers ...).
BELIEF	The belief project produced a guide "Involve stakeholders and citizens in your local energy Policy". It contains a detailed method aimed at creating, running and organizing successful forums allowing to actively involve the stakeholders and gain their support. Many examples are provided as well as contact details. Other aspects of the SEAP elaboration process are not covered in detail.
MOVING SUSTAINABLY	The "Moving sustainably" project has elaborated a web-based "Guide to Sustainable Urban Transport Plans", also available on paper. Each step of the plan elaboration procedure is well detailed, including instructions related to the implementation. A check-list is given for each step, as well as numerous examples. It covers on a very effective manner the involvement of the main stakeholders of the municipality. External references (websites with good practices) are given. This method has introduced an innovative perspective that considers the difference of public transport usage by men and women (gender approach). The methodology has specially been created to develop a sustainable transport plan can be adapted to energy planning in general.
ENOVA (3-NITY project)	The 3-Nity project has produced a guidebook for Municipal energy and climate planning. The manual covers well the evaluation of the current situation and analysis of city's resources and illustrates how to integrate the energy planning in the general strategy of the city (research of drivers). How to perform the baseline assessment and to implement the measures is well detailed. Some useful references to external resources are provided (websites and tools). The methodology contains example of tables allowing evaluating the CO ₂ reduction potentials of the municipality. Some issues are only covered superficially (reaching a political commitment, monitoring and reporting ...). The guide is in some aspects very focused on the specific situation of Norway. The 3-nity project also provides other specific tools: <ul style="list-style-type: none"> - activity planning - municipal organisation evaluation ("sustainable excellence") - REAM, a simulation model that allows to identify a cost effective development of the energy system
ICLEI / NATURAL CAPITALISM	Based on the ICLEI methodology, Natural Capitalism Solutions has developed a Climate Protection Manual for cities. It covers the main aspects of SEAP elaboration process but emphasizes awareness raising, stakeholders commitment and the dissemination of the results, whereas some aspects are not covered (financing ...). The guide includes many examples of different measures in various sectors and numerous references to external resources. Tools developed by ICLEI include Climate and Air Pollution Planning Assistant, Data Collection Tools, a Local Government Operations Protocol For the quantification and reporting of greenhouse gas emissions inventories, CAPC 2009 (emission management tool) etc.
MUSEC	The MUSEC project has developed detailed and well structured practical workbook for towns, regions or countries willing to develop a Sustainable Energy Community. It covers the main aspects of SEAP elaboration process and emphasises interesting aspects like potential assessment, targets setting, energy accounting, and monitoring. It provides tips and best practice examples. Communication and dissemination are not covered in detail.

CLIMATE COMPASS	Climate Alliance gives advice and support to its member cities and municipalities in order to fulfil their commitment to climate protection. This includes detailed advice on the SEAP elaboration process. Unfortunately, all existing documents related to SEAP elaboration process are not available on the website, as some of them are communicated to members only. The evaluation presented in the first page of the signposting system was performed using what was at our disposal. Climate Alliance has also developed the Climate Compass tool which is available on the website and contains a "compendium of measures". It is focused on helping the municipalities to select the appropriate measures according to their level of ambition (from "getting started" to "taking the lead"). It includes numerous case studies and references to external resources. Other tools are available as well.
MINNESOTA PROJECT	A manual for "Designing A Clean Energy Future" has been developed by the Minnesota project with the scientific support of the University of Minnesota. It provides a general overview of the SEAP elaboration process, and is focused on increasing awareness and getting support from stakeholders, with best practice examples. Several recommendations and case studies of measures in the field of renewable energy are given. Important aspects of the SEAP elaboration process are not covered enough like financial issues, or monitoring and reporting.
PEPESEC	An Energy Planning Guide is being produced under the PEPESEC project (ongoing). It covers well the first stages of SEAP elaboration (political commitment, stakeholders' involvement) but other aspects (financial plan, project management ...) are not covered in depth. Practical examples are provided. The methodology has been used in the energy planning of nine (small) cities in Sweden.
EUROPEAN ENERGY AWARD	The European Energy Award® is a certification and quality management system for cities and communities in Europe willing to improve energy efficiency at the local level. It allows municipalities to identify strengths, weaknesses and potential for improvement and, above all, implement effectively energy efficient measures. A catalogue of measures and an evaluation tool allow evaluating and selecting appropriate measures for the SEAP. The success of a municipality's efforts is made visible by an award. The standardized assessment permits a benchmarking between communities. It allows member cities to share their experiences and expertise. It is an efficient implementation tool in the context of the CoM. Access to documents is conditioned to membership and payment of a licence fee.

9. ORGANISMS/EXPERTS CONSULTED⁶

ADENE	GRIP
ADEME	ICLEI - Local Governments for Sustainability
Agenzia per l'energia e lo sviluppo sostenibile	IFEU - Institut für Energie und Umweltforschung Heidelberg GmbH
ANEA Energy Agency	Junta de Andalucía
ARE Liguria	KOBA
ARPA	MINUARTIA Consultants
ASPA	North-West Croatia Regional Energy Agency
Catalonia Polytechnic University	Provincia de Bologna
CCRE - Conseils des Communes et Régions d'Europe (Énergie Cités)	Regea Energy Agency
City Council of Almada	Regione Siciliana
City of Freiburg	SENTERNOVEM Agency
City of Grenoble	SINERGIA Development Agency
City of Hamburg	SKANE Agency method
City of Heidelberg	SOFIA ENERGY AGENCY
City of Helsinki	Softech Team
City of Lausanne	SOGESCA SRL
City of Modena	Southwark Area
City of München	SPES Consulting
City of Padova	TARGET GmbH
City of Rennes	Union of the Baltic Cities and Sustainable Development Secretariat)
City of Rimini	Catalonia Polytechnic University
City of Sevilla	VEOLIA Environnement Europe Services
City of Växjö	
City of Zoetermeer	
City of Zürich	
Climate Alliance	
Collège d'Europe	
Communauté Urbaine de Dunkerque	
CRES	
DAPHNE	
Diputación de Barcelona	
Diputación de Huelva	
DUBLIN - CODEMA Energy Agency	
ENEA	
ENEFFECT	
ENERGAIA	
Energy Centre Bratislava (ECB)	
ENOVA Agency	
Ente Vasco de la Energía - EVE	
EREA energy agency	
EUROPEAN ENERGY AWARD®	

⁶ In bold, those organisms/experts that replied to the request

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Part II: Existing methodologies and tools for CO₂ inventories in cities

1. INTRODUCTION

The methodologies available for the estimation of CO₂ emissions and emission savings in cities were searched in the internet and based on contacts with local authorities' networks and tool developers. The *Workshop on methodologies for city Sustainable Energy Action Plans*⁷ organized in Ispra, Italy, 18-19 May, 2009 provided important information for the purposes of this analysis. All the methods and tools presented in the Session 3 of the Workshop (see Annex II.1) are analyzed in this document. Furthermore, the topics that were identified at the workshop as being of particular importance when defining a Baseline Emission Inventory have been given particular attention.

The aim was to search for methodologies that are widely accepted and applied, in contrast to searching for methodologies used in a single country or by a single city. The focus of the search was in methodologies, instead of tools. Therefore, any tool that was chosen to be analyzed had to fulfil the criteria of being documented and the methodology used by the tool being clearly explained.

Some of the organizations, for example Climate Alliance and ICLEI, have developed different tools for different regions during the years. In this document, we aim at analyzing the latest methodology or tool of each organization.

The methodologies analyzed in this document are the following:

- A. Emission tracker tool (Project 2 degree, Clinton Climate Initiative)
- B. International Local Government GHG emission Analysis Protocol (ICLEI)
- C. The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (WRI/WBCSD)
- D. The Greenhouse Gas Protocol: The GHG Protocol for Project Accounting (WRI/WBCSD)
- E. ADEME tools: Bilan carbone
- F. California Climate Action Registry Project Protocols
- G. GRIP tool
- H. ECORegion (Climate Alliance)

In addition, there are a number of methodologies and tools developed in projects, or that are specific to a single country. These are not examined in detail in this document, except one methodology, inclusion of which was suggested by the EEA.

- I. Local and regional CO₂ emissions estimates for 2005-2006 for the UK

The Sections describing the available tools and methodologies are organized as presented below. The items marked with an asterisk are later used for signposting of the methodologies.

- Name of the document
- Purpose
- Developed by
- Documentation available at

⁷ http://re.jrc.ec.europa.eu/energyefficiency/html/Workshop_CoM_Ispra_18-1905-2009.htm

- Tool*
- Boundaries*
- Scope*
- Sectors*
- Compounds*
- Methodology for stationary combustion*
- Methodology for transportation*
- Methodological levels
- Methodology for emission reductions

Institut Veolia Environnement and the College of Europe have carried out a *Comparative Analysis of Local GHG Inventory Tools*⁸. The aim of the work was to identify the most used, advanced or promising methodologies for city inventories and to analyze whether and how the results obtained using different tools can be compared. Altogether six different tools were analyzed. The results of that project are incorporated in our analysis to relevant extent.

All the tool developers were invited to comment on a draft version of this report, and the comments received are incorporated into this document.

2. AVAILABLE METHODOLOGIES FOR THE ESTIMATION OF CO₂ EMISSIONS/EMISSION SAVINGS

The analyzed tools typically use comparable emission factors and recommend comparable activity data sources. Instead, differences can be found in the treatment of indirect emissions from electricity produced outside the municipality; in the treatment of transportation biofuels; and the manner in which emissions from combined heat and power production (CHP) are allocated between heat and electricity. Other major differences can be found regarding which sectors and compounds are included and how the boundaries and scopes are set for the inventories.

The following Sections focus on these aspects of the existing methodologies.

⁸ http://www.coleurop.be/content/development/references-academiccooperation/GHGinventories_finalreport.pdf

A. Emission tracker tool (Project 2 degree, Clinton Climate Initiative)

Name of the document: Project 2° Administrators & Users Guidance Manual

Purpose: In the framework of Project 2° (launched by the Clinton Climate Initiative), to encourage cities to calculate their GHG emissions of both municipal operations and the entire community in a uniform way, and to enable cities to plan meaningful actions that save energy and money, and make a profound impact in the fight against climate change.

Developed by: Clinton Climate Initiative and ICLEI

Documentation available at:

http://www.project2degrees.org/Pages/Users_and_Administrators_Guidance_Manual.Version_1.doc

Tool: The emission tracker tool can be accessed from <http://www.project2degrees.org>

Boundaries: The method provided by the Project 2 degree divides emissions between *community* and *government* inventory. The *community* emissions occur inside a geographical region, and *government* emissions are those over which the local authority may exercise control. Thus the *community* emissions include also *government* emissions.

Scope: Scope 1 emissions are those occurring within the geopolitical boundary of the municipality (for example from road, rail, sea and air transportation within the geopolitical boundary). Scope 2 emissions, called indirect emissions, are emissions occurring in the production of electricity, steam, heat and cooling used within the geopolitical boundary, but produced outside it. Scope 3 deals with indirect emissions that occur as a result of an activity within the geopolitical boundary, for example rail, sea and airborne transportation departing from or arriving into the community.

Sectors: *Community inventory:* Energy Use, Grid Power Generation, Transportation, Solid waste and wastewater, Process Emissions, Agriculture, Forestry and Other Land Use, Other.

Government inventory: Buildings & Other Facilities, Street Lighting & Traffic Signals, Grid Power Generation, Vehicle Fleet, Water Supply, Wastewater, Solid Waste, Other.

Compounds: all the Kyoto GHGs

Methodology for stationary combustion:

Input data for fuel use: Fuel type, activity area (such as industrial or power generation) and volume of fuel consumed. Sources: utilities, fuel tax records and fuel suppliers. In the case of small scale sources distributed at a highly local level, end user surveys may need to be performed.

Input data for electricity consumption: can be obtained from the grid power network, electricity suppliers, or other government entities that regulate electricity generation in the area.

Emission factor for electricity: The software is pre-loaded with emission factors and coefficients that vary by country, including emissions associated with electricity consumption. However, the default values may not be applicable to the particular circumstances of a city, so a review of the values is recommended.

CHP emission factor: Not mentioned

Green electricity purchases: For government inventories, information around any renewable electricity purchases the city has made above and beyond the standard renewable content of utilities in the area as well as any solar electricity generation on government's own facilities should be included.

Methodology for transportation:

Input data: In the *government* inventory emissions estimates should be based on information regarding the type of vehicle, fuel type (e.g. gasoline, diesel, biodiesel, etc.) and the distance travelled. The Emissions Tracker software has average fuel efficiencies by vehicle type, but specific fuel efficiencies for vehicles in the municipal fleet or in the community can be applied as well.

For *community inventories*, the tool can calculate emissions based on distance travelled, using assumptions about vehicle types. Information about the proportion of distance travelled by vehicle type needs to be gathered. The Emissions Tracker can also calculate emissions based on fuel use by vehicle type in the community.

The software is pre-loaded with emission factors and coefficients that vary by country, including the emissions per kilometres of automobiles.

Biofuels: not mentioned

Methodological levels: The report presents the general idea of different tiers, and applies “de minimis” threshold, i.e. that the least important emission sources do not need to be estimated (those less important than 3% together). The methods are based on IPCC 2006.

Methodology for emission reductions: The tool provides support for designing a “Climate Action Plan” and “GHG Reduction Measures”, see

http://project2degrees.org/Help/Emissions%20Tracker%20Help.htm#_Toc212446053

B. International Local Government GHG emission Analysis Protocol

Name of the document: International Local Government GHG Emissions Analysis Protocol. Release Version 1.0

Purpose: to provide an easily implemented set of guidelines to assist local governments in quantifying the greenhouse gas emissions from both their internal operations and from the whole communities with their geopolitical boundaries.

Developed by: ICLEI

Documentation available at:

http://www.iclei.org/fileadmin/user_upload/documents/Global/Programs/GHG/LGGHGEmissionsProtocol.pdf

Tool: The ICLEI has developed the HEAT tool, which is available at

<http://heat.iclei.org/ICLEIHEAT/portal/main.jsp>

However, it may not be completely in accordance with the latest protocols, but updates are being made.

Boundaries: Two parallel analyses of emissions: one for *local government operations* and one for all sectors of the *community*, i.e. two boundaries, the organizational and geopolitical.

Scopes: *Government operations emissions:* Scope 1: direct emission sources owned by the local government; scope 2: indirect emission sources limited to electricity, district heating, steam and cooling consumption; scope 3: all other indirect and embodied emissions over which the local government exerts significant control or influence. In some cases emissions from contracted services should be included as well, e.g. if the contracted service is something that the local government usually does, or if it was before (base year) part of local government's operations.

Community-scale emissions: Scope 1: all direct emissions within the geopolitical boundary; scope 2: indirect emission sources limited to electricity, district heating, steam and cooling consumption; scope 3: all other indirect and embodied emissions that occur as a result of activity within the geopolitical boundary.

Sectors: Stationary Combustion, Electricity / Heat Consumption, Mobile Combustion, Fugitive Emissions, Industrial Processes and Product Use, Agriculture, Forestry and Other Land Use, Waste. In the inventory of local government, the energy use is split to buildings and facilities, street lights and traffic signals and water/wastewater treatment and distribution.

Compounds: all the Kyoto GHGs

Methodology for stationary combustion:

Input data for fuel use: Data on total community fuel use should be gathered from the primary energy providers. Wherever possible this data should be segregated by the energy provider into sectors of the economy (residential, commercial and industrial). It is important that all fuel supplied for purposes of producing electricity or centralized heat or cooling (e.g. steam) that will be supplied to the grid (and could subsequently be reported as a Scope 2 emissions source) be tracked and reported separately.

Input data for electricity and heat consumption: Data on total community use of electricity and heat shall be gathered from the primary energy providers.

Emission factor for electricity: *Government inventory:* Electricity supplied from all electricity providers supplying the grid must be included in the analysis. It is good practice to gather the energy

data facility by facility. Emission factors for local governments can be developed e.g. if electricity generation facilities differ from that of a larger grid.

Community inventory: Local governments shall strive to adopt emission factors that most accurately model the impacts of the decisions that are made locally about the consumption of electricity or central heating/cooling. In some cases this will mean the use of a regional emission factor and in some cases it will mean use of an emission factor developed for a specific utility.

CHP emission factor: In CHP, fuel use is divided between electricity and heat based on the energy output. If district heating is based on 'waste heat', so that it is originating from a source that would already be in operation (such as waste incineration) it can be considered as carbon neutral, taken that it is included elsewhere in the inventory.

Green electricity purchases: not mentioned

Methodology for transportation:

Input data: In the *government* inventory, emissions from mobile combustion are calculated based on fuel used by vehicles owned or operated by the local government. Alternatively, emissions from transportation can be estimated based on distance travelled and using fuel efficiencies of the different vehicles. Also employee commuting and employee air travel can be included.

In the *community* inventory, emission estimate of mobile combustion should ideally be based on fuel consumption but usually data are not available. In that case, the emissions are to be calculated based on distance travelled (scope 1). Scope 3 emissions are either emissions of road vehicles used by community residents or emissions from transportation demand generated by local residences and businesses. For air travel, there are two options: (1) originating from the community or (2) serving the needs of the community's residents. For the first options, the fuel use in flights originating from the community is calculated. For the second one, all the airports in the region that may serve the needs of community residents have to be identified. Then, using fuel use and information of the share of community's residents in all the flights should be estimated. Marine transport: emissions occurring inside the geopolitical boundary of the community should be included. Marine transport originating from the community to be calculated as Scope 3 based on fuel loaded in the ships.

Biofuels: Life-cycle emissions of biofuels are not considered, but can be considered in scope 3 emissions. Local governments are encouraged to consider upstream emissions from the specific source of biofuels in making decisions about the use of those fuels.

Methodological levels: Three tiers described for emission factors. Tier 1: IPCC emission factors; Tier 2: country-specific emission factors; Tier 3: detailed emission factors using operating conditions, combustion technology etc. In the case of activity data, Tier 1 is e.g. national average fuel use/capita, Tier 2 is based on some more data, and Tier 3 is based on e.g. metered energy use.

Methodology to estimate emission reductions: Not available

C. The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (WRI/WBCSD)

Name of the document: The Greenhouse Gas Protocol. A Corporate Accounting and Reporting Standard. Revised edition.

Purpose: The purpose is to help companies⁹ prepare a GHG inventory that represents a true and fair account of their emissions, through the use of standardized approaches and principles; to simplify and reduce the costs of compiling a GHG inventory; to provide business with information that can be used to build an effective strategy to manage and reduce GHG emissions; to provide information that facilitates participating in voluntary and mandatory GHG programs; to increase consistency and transparency in GHG accounting and reporting among various companies and GHG programs.

Developed by: World Business Council for Sustainable Development (WBCSD) and World Resources Institute (WRI)

Documentation available at: <http://www.ghgprotocol.org/files/ghg-protocol-revised.pdf>

Tool: Several tools are available for different industry sectors. For instance, there is a tool for calculation of emissions from purchased electricity, heat, or steam; a tool for allocation of emissions from a combined heat and power (CHP) plant; and a tool for calculation of GHG emissions from transport or mobile sources. The tools are available at

<http://www.ghgprotocol.org/calculation-tools/all-tools>

Boundaries: Two sets of inventory boundaries for companies: (1) Organizational boundaries: equity share or financial control method and (2) Operational boundaries.

Scope: Scope 1: Direct GHG emissions from sources owned or controlled by the company; scope 2: emissions from generation of purchased electricity, heat or steam; scope 3 (optional): other indirect emissions. Sales of own-generated electricity are not deducted from scope 1 emissions. Transmission and distribution losses are included in scope 2 if the company owns or controls the transmission/distribution network. End consumers do not report transmission and distribution losses. Purchased electricity that is re-sold is reported under scope 3, whereas purchased electricity used is reported under scope 2 and own-generated electricity used under Scope 1.

Sectors: All, but no detailed methodology for carbon sequestration.

Compounds: all the Kyoto GHGs

Methodology for stationary combustion:

Input data for fuel use: company-specific

Input data for electricity and heat consumption: company-specific

Emission factor for electricity: Recommended to obtain source or supplier specific emission factors for purchased electricity, if not available, to use grid averages.

CHP emission factor: not specified

Green electricity purchases: are accounted for as an emission reduction measure

Methodology for transportation:

Input data: Detailed data on company-owned vehicles.

⁹ Even though this protocol is not targeted to local governments, the description is included here because the clear and detailed descriptions in the document can be useful for the development of methodologies for CoM inventories. Also, the protocol has been used as a basis for the development of other protocols.

Biofuels: CO₂ from biomass/biofuels reported separately as an information item.

Methodological levels: Not relevant

Methodology for emission reductions: If the emission reductions occur inside the inventory boundaries, the emission reductions are captured by the inventory and there is no need to report them separately. An example of reduction that has to be reported separately is substituting fossil fuel with waste derived fuel, which reduces emissions from landfilling that would not otherwise be reported in the inventory of the company. Another example is establishment of a CHP plant that will increase the inventory emissions of the company but reduce emissions of other end-users of electricity from the grid.

Project based offsets: First, a baseline scenario is chosen, and then the project reduction is calculated as the difference between baseline and project emissions. Additionality has to be demonstrated. Then, relevant secondary effects have to be identified and quantified. Then, reversibility has to be considered (e.g. in the case of carbon sequestration, whether there is the risk that carbon is emitted back to the atmosphere). Finally, double counting has to be avoided, e.g. if the offsets are indirect, so that the direct emitter does not account for them as well.

D. The Greenhouse Gas Protocol: The GHG Protocol for Project Accounting (WRI/WBCSD)

Name of the document: The GHG Protocol for Project Accounting

Purpose: To provide a credible and transparent approach for quantifying and reporting GHG reductions from GHG projects; to enhance the credibility of GHG project accounting through the application of common accounting concepts, procedures, and principles; and to provide a platform for harmonization among different project-based GHG initiatives and programs.

Developed by: World Business Council for Sustainable Development (WBCSD) and World Resources Institute (WRI)

Documentation available at: http://www.ghgprotocol.org/files/ghg_project_protocol.pdf

Tool: There is no tool for projects, but reference is given to tools developed for corporate accounting and reporting standard (see above).

Boundaries: Project boundaries. GHG assessment boundary shall be clearly defined and reported. The GHG assessment boundary shall include the primary and significant secondary effects of all project activities.

Scope: Primary and secondary effects of the project.

Sectors: All the sectors relevant for the project. A separate guidance for LULUCF projects.

Compounds: all the Kyoto GHGs

Methodology for stationary combustion: Emissions from fuel and electricity consumed within the project boundary, including both primary and secondary effects. Change in stationary combustion emissions can be either a primary effect (specific changes in GHG emissions that a project activity is designed to achieve) or a secondary effect (an unintended change caused by a project activity) of the project.

Methodology for transportation:

Input data: Detailed fuel use etc data if the project involves transportation of materials, employees, products, or waste.

Methodological levels: Not relevant

Methodology for emission reductions: Yes, as this is a protocol for projects.

E. ADEME tools: Bilan carbone

Name of the document: Methodological Guide (Version 5.0): Objectives and Principals for the Counting of Greenhouse Gas Emissions

Purpose: A method for companies and local authorities to calculate their GHG emissions. Bilan carbone contains a methodological book; an emission factor guide; Excel tools for territory and organization approaches with databases of 1500 emission factors; a series of other Excel tools which, for example, help the user to generate data.

Developed by: ADEME (Agence de l'Environnement et de la Maîtrise de l'Energie)

Documentation available at:

<http://www2.ademe.fr/servlet/KBaseShow?sort=-1&cid=15729&m=3&catid=22543>

Tool: A tool is available.

Boundaries: In the module for local authorities there are two different approaches: territorial approach and “assets and services” approach. The territorial approach includes emissions that occur inside the geographical boundaries (direct emissions) and due to activities inside the territory (indirect emissions). The “assets and services” approach includes the emission sources which are in local authority’s direct hold.

Scope: Includes all the emissions following a life cycle approach (scopes 1, 2 and 3).

Sectors: The territory approach includes GHG emissions from Production of energy; Industrial sector; Agriculture and fishing sector (including production of fertilizers); Commercial activities; Housing sector; Freight; Passenger travel; Construction sector (including roads); Waste treatment; Production of the wastes that are treated; Food consumption.

The “assets and services” approach evaluates all GHG emission under the operational control of the local authority

Compounds: All the Kyoto GHGs and CFCs

Methodology for stationary combustion:

Input data for fuel use: meter readings/utility bills (recommended); proxy year data normalized with heating or cooling degree days (alternative); or fuel estimates based on comparable facilities and square footage (alternative).

Input data for electricity and heat consumption: metered readings/utility bills (recommended); estimated electricity use based on comparable facilities and square footage (alternative). For housing, heating electricity and other electricity consumption are calculated separately.

Emission factor for electricity: Verified utility-specific emission factor or GRID national default emission factor.

CHP emission factor: There is not specific guidance.

Green electricity purchases: Green power purchases should be taken into account. This rule might change.

Methodology for transportation: Different approaches in the territorial module: (1) transport departing from or arriving at the territory; (2) transportation of the citizens of the territory; (3) transportation of the visitors (tourism, business, family visits)

Input data: Direct fuel consumption or average of consumption per type of vehicles (input data: vehicle-km), or average per type of travel (input data: passenger-km), or average per type/size of territory (input data: number of inhabitants and size of the territory)

Plane, boat, train, cars and urban public transport are taken into account.

For freight: Direct fuel consumption or ton-kilometres per category of trucks/plane/boat/train, or average per number of inhabitant (only for boat and trucks).

Biofuels: will be taken into account through the “national mix” for the transport sector. User can choose 100% biofuel if consistent with the reality (“assets and services” approach)

Methodological levels: Not relevant

Methodology for emission reductions: Not available

F. California Climate Action Registry Project Protocols

Name of the document: Climate Action Reserve Program Manual (and different documents for different sectors)

Purpose: To present the rules, policies and procedures for registering projects and creating offset credits with the Climate Action Reserve. It also describes the process used by the Reserve to develop protocols for determining the eligibility of, and quantifying reductions from, carbon offset projects.

Developed by: California Climate Action Registry

Documentation available at: <http://www.climateregistry.org/tools/protocols.html>

Tool: the CARROT tool is available at <http://www.climateregistry.org/tools/carrot.html>

Boundaries: project boundaries

Scope: emissions inside the project boundary

Sectors: Depends on the project. Guidance is currently available for certain project types in livestock, forest, landfills and urban forests sectors.

Compounds: depends on the project

Methodology for stationary combustion: not relevant (focus on other sectors)

Methodology for transportation: not relevant (focus on other sectors)

Methodological levels: not relevant

Methodology for emission reductions: Methodologies for projects reducing emissions in the following sectors: livestock, forest, landfill, urban forests

G. GRIP

Name of the document: Greenhouse gas Regional Inventory Protocol (G.R.I.P)

Purpose: A stakeholder orientated approach focused on mutual learning with three steps: (1) set up a regional greenhouse gas inventory; (2) develop 'Energy Scenarios'; (3) use the scenario outputs to inform plans

Developed by: The University of Manchester, Centre for Urban and Regional Ecology, School of Environment and Development

Documentation available at: <http://www.grip.org.uk/Home.html>

Tool: The tool can be accessed at <http://www.carboncaptured.org.uk/>

Boundaries: geopolitical boundaries of a region or municipality

Scope: Scopes 1 and 2. In addition, emissions associated with the treatment of waste when it is disposed outside the region (scope 3).

Sectors: Energy, industrial processes, agriculture and waste

Compounds: All the Kyoto GHGs

Methodology for stationary combustion:

Input data for fuel use: natural gas, solid fossil fuels, liquid fossil fuels, biomass

Input data for electricity and heat consumption: Fuels used in generation, output from generation, consumption by sector, losses.

Emission factor for electricity: Electricity is considered in three parts: that from the grid, that from CHP and that from onsite generation.

CHP emission factor: Emissions from CHP are allocated to the end user and divided into four parts: heat consumed, electricity consumed, electricity lost and heat lost.

The above refers to situations when activity data are available. If not, there are scaling factors available in GRIP for the estimation of activities, such as economic activity by sector, GDP, households, household expenditure on fuels and waste disposal methods.

Methodology for transportation:

Input data: fuel consumption by fuel type. If the data are available, scaling factors included in GRIP are used for the estimation of emissions. Such scaling factors are for example vehicle ownership and transportation miles by mode and person.

Methodological levels: Three different levels. The GRIP for Europe Level 1 approaches are the most accurate, with level 3 approaches having the highest level of uncertainty associated with them.

Methodology for emission reductions: scenario tool available to facilitate discussion.

H. ECOREgion

Name of the document: ECoregion - Regional Energy- und Greenhouse Gas Balances (website)

Purpose: To offer local and regional authorities an easy and solid calculation method for energy consumption and CO₂ emissions. By providing the same methodology, the same national data and calculation parameters with centralized data update each year in an internet-based tool, a comparison of emission inventories of different cities is possible and inconsistencies coming from the use of individual tools are erased.

The tool offers the preparation of a so-called 'start balance', where CO₂ emissions of the city are calculated only proportional to the number of inhabitants and to the number of employees in a total of 19 economic sectors (top-down-approach). Based on this start balance, the 'end balance' can be calculated with individual data (bottom-up-approach). In the case that no local data are available, the values calculated in the start balance remain included, offering by this complete data sets for the emissions in the different sectors which are more or less adapted to the local conditions.

Developed by: Ecospeed in collaboration with Climate Alliance, European Energy Award, Swiss Cantons, Federal Office for Energy and Environment of Switzerland

Documentation available at:

http://www.ecospeed.ch/eco2region/data/ECOREgion_Flyer_EN_20091001.pdf

http://www.ecospeed.ch/eco2region/data/ECOREgion_Short_Instruction_EN_20091001.pdf

http://www.ecospeed.ch/eco2region/data/ECOREgion_Communities_EN_20091001.pdf

http://www.ecospeed.ch/eco2region/data/ECOREgion_Methodology_EN_20091001.pdf

Tool: Different versions of the tool can be purchased at

<http://www.ecospeed.ch/>

ECOREgion^{smart} is a monitoring tool for energy end use and CO₂ emissions divided into household, economic and transportation sector. ECoregion^{pro} includes also industry, other non-energy sources and all greenhouse gases. ECoregion^{premium} is an advanced version of ECoregion^{pro} including scenario-calculations and measures. ECoregion^{community} can be used to manage a portfolio of cities and municipalities which use ECoregion.

Boundaries: ECoregion calculates the final energy, the primary energy and the corresponding CO₂ emissions for cities and municipalities and also for "communities", which in this case are groups of local authorities like counties and regions, but could also be members of the same network or working group.

Scope: The core data of ECoregion are the final energy consumptions of a region (like in IPCC Category Nr. 1). In addition, ECoregion produces CO₂-emissions based on final energy, LCA for energy or CO₂-emissions based on LCA.

Sectors: Energy consumption in private households, agriculture, industry, energy (energy and district heating production at the local level) and service sector, the municipal buildings, the public lighting and the municipal infrastructure (municipal waste management, sewage treatment plants), passenger and freight transport for the modes: road, rail, shipping and aviation.

Compounds: All the Kyoto GHGs

Methodology for stationary combustion: The CO₂ balancing method is defined by the energy consumption in the municipality. ECoregion calculates the consumption of electricity or district heating and also the consumption of other energy carriers like gas, biogas, wood, coal, waste, heating oil and plant oil.

Emission factor for electricity and district heating: The municipalities and communities can calculate their energy consumption and CO₂ emissions with a national electricity and district heating mix, or develop their own local or regional mixes.

Methodology for transportation: The transport sector is calculated in four different categories: Private transport (motorbikes and cars), local public transport (bus, metro, suburban and regional railway), long distance transport (intercity rail traffic and aviation) and freight traffic (trucks, railway and ship).

Input data: The transport performance is calculated in person kilometres or in ton kilometres, using fuel mixes and per capita use or per ton use parameters to calculate the consumption from the different transportations modes. These mixes and per capita or per ton use parameters can be adjusted with local or regional data.

Methodological levels: (a) Top-Down-Approach: the national per capita and per employee key data (energy consumption per capita) and the local number of inhabitants and employees are used to calculate a first estimation of the local energy consumption. (b) Bottom-Up-Approach: All local data which are available can be implemented directly into ECORegion. These data replace all pre-calculated data of the top-down-approach. (c) Inter-/Extrapolation: If the local data are not available for every year, the missing years can be inter- or extrapolated between the available data directly in ECORegion. These data are more precise than the top-down-approach but less precise than the bottom-up-approach.

Methodology for emission reductions: scenario tool available

I. Local and regional CO₂ emissions estimates for 2005-2006 for the UK

Name of the document: Local and Regional CO₂ Emissions Estimates for 2005 - 2006 for the UK

Purpose: To provide a spatial disaggregation of the national CO₂ inventory on an End User basis in which emissions from the production and processing of fuels (including electricity) are reallocated to users of these fuels to reflect the total emissions relating to that fuel use.

Developed by: AEA Technology, Report to Department for Environment, Food and Rural Affairs

Documentation available at:

<http://www.defra.gov.uk/environment/statistics/globalatmos/download/regionalrpt/local-regionalco2-report06.pdf>

Tool: No tool developed. This is a study providing spatial disaggregation of emissions in the UK, not meant to be a methodology for municipalities.

Boundaries: Spatial disaggregation of national CO₂ inventory based on End User basis, thus in contrast to 'at source' emissions.

Scope: 'at source' for point source emissions from industries (scope 1); other emissions allocated based on location of energy consumption (scope 2)

Sectors: Industry and Commercial Electricity, Industry and Commercial Gas, Industry and Commercial Large Gas Users, Industry and Commercial Oil, Industry and Commercial Solid fuel, Industry and Commercial Process gases, Industry and Commercial Wastes and biofuels, Industry and Commercial Non fuel, Industry Offroad, Diesel Railways, Agriculture Oil, Agriculture Solid fuel, Agriculture Non fuel, Domestic Electricity, Domestic Gas, Domestic Oil, Domestic Solid fuel, Domestic House and Garden Oil, Domestic Products, A-Roads Petrol, A-Roads Diesel, Motorways Petrol, Motorways Diesel, Minor Petrol, Minor Diesel, Road Transport Other, LULUCF

Compounds: CO₂

Methodology for stationary combustion:

Input data for fuel use: Industrial and commercial gas consumption by local authority areas are based on metered data. Gas consumption uses a 17 year average weather correction.

Point source emissions for industries are treated as 'at source' estimates rather than those of the product end user. Site-specific data used for point-sources.

Emissions distribution maps for the small industrial combustion, public services, commercial and agriculture (stationary combustion) are based on data on employment at business unit level by Standard Industrial Classification (SIC) code; and on BERR Energy Consumption in the UK data on industrial and commercial sector fuel usage for 2005.

Input data for electricity and heat consumption: Local electricity consumption estimated based on actual or estimated meter readings.

Emission factor for electricity: Emissions from electricity consumption have been estimated using an average UK factor for the relevant year in terms of kt CO₂/GWh.

CHP emission factor: not mentioned

Green electricity purchases: the same EF is used for the entire country, i.e. green electricity purchases are not considered separately

Methodology for transportation:

Input data: The emissions of road transportation are based on the assumption that the fleet mix is the same everywhere in the UK road network (i.e. national estimates can be used) regarding age of the fleet and fuel mix. 6 different vehicle types are included. Fuel consumption maps for the UK are calculated from the speed related fuel consumption factors multiplied by vehicle flows. Traffic flow data for major roads available on a census count point basis. This census data are not available for minor roads, and therefore regional average flows by vehicle type have been applied. Vehicle kilometres data are calculated based on traffic flow rates, fuel splits and lengths of each road type. These estimates are then compared with national level fuel use data.

Biofuels: not mentioned

Methodological levels: not relevant

Methodology for emission reductions: not relevant

3. SUMMARY OF EXISTING METHODOLOGIES

Table 1 below summarizes the approach, boundaries, sectors, compounds and scopes of the different methodologies, for the purpose of the assessment of their suitability to the compilation of a Baseline Emission Inventory under Covenant of Mayors.

The following issues are summarized in Table 1:

- Approach: territorial or LCA.
- Boundaries: geographical, organizational/operational, project
- Sectors: energy, transportation, industrial processes, agriculture, land use, land use change and forestry (LULUCF) and waste
- Compounds: CO₂, CH₄, N₂O, f-gases (HFCs, PFCs, SF₆)
- Scopes: scope 1 (emissions within a municipality), scope 2 (indirect emissions due to production of electricity, heat/cooling/steam used in the municipality), scope 3 (all other indirect emissions)

Table 1. Summary of existing methodologies

Label	Approach		Boundaries			Sectors						GHGs				Scope		
	Territorial	LCA	Geographical	Organizational/ Operational	Project	Energy	Transportation	Industrial processes	Agriculture	LULUCF	Waste	CO ₂	CH ₄	N ₂ O	f- gases	1	2	3
A	X	X*	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
B	X	X*	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
C	X	X		X		X	X	X	X		X	X	X	X	X	X	X	X
D	X				X	X	X	X	X		X	X	X	X	X	X	X	
E	X	X	X	X		X	X	X	X		X	X	X	X	X	X	X	X
F	X				X				X	X	X	X	X	X		X		
G	X		X			X	X	X	X		X	X	X	X	X	X	X	X**
H	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	
I	X		X			X	X					X				X	X	

*LCA only in scope 3

**scope 3 only regarding waste disposal outside the geographical area

Explanation of labels

- A. Emission tracker tool (Project 2 degree, Clinton Climate Initiative)
- B. International Local Government GHG emission Analysis Protocol
- C. The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (WRI/WBCSD)
- D. The Greenhouse Gas Protocol: The GHG Protocol for Project Accounting (WRI/WBCSD)
- E. ADEME tools: Bilan carbone
- F. California Climate Action Registry Project Protocols
- G. GRIP tool
- H. ECORregion
- I. Local and regional CO₂ emissions estimates for 2005-2006 for 2005-2006 for the UK

4. INVENTORIES UNDER THE COVENANT OF MAYORS

The boundaries, scope and sectors of the Baseline Emission Inventory under Covenant of Mayors were defined and agreed based on the work of the JRC, DG TREN and Covenant of Mayors Office, and the two workshops organized with the practitioners group.

The CoM inventory can be described, using the same structure than above, as being the following:

Boundaries: geographical boundaries of the local authority

Scope: Direct emissions from use of fuels in the territory (scope 1); direct and indirect emissions due to production of electricity, heat and cold consumed in the territory (scope 1 and 2).

Sectors: Energy consumption (electricity, heating, cooling), urban road and rail transportation. Optional to include also landfills and other sources.

Compounds: At least CO₂, optional to include also other GHGs.

Methodology for stationary combustion:

Input data for fuel use: local fuel use (for instance for building-specific heating or transportation), fuel use in local heat/cold and electricity plants¹⁰

Input data for electricity and heat consumption: Amounts of imported heat and electricity are calculated as 'consumption minus local production', thus ignoring transportation losses.

Emission factor for electricity: either a national or European emission factor (following IPCC or LCA principles) is used as a basis. Local production and green electricity purchases of the local authority can be taken into account following specific rules.

CHP emission factor: based on energy outputs and efficiencies of separate production processes

Green electricity purchases: Purchases of certified green electricity by the local authority can be taken into account in the electricity emission factor.

Methodology for transportation:

Input data: estimated mileage driven on the street network of the local authority

Biofuels: If emission factors following the IPCC principles are used, biofuels produced in a sustainable manner are considered as CO₂ neutral. If emission factors following LCA principles are used, specific emission factors are applied.

Methodological levels: The local authority can choose whether to use emission factors based on IPCC principles or LCA emission factors. In addition, there is a certain degree of flexibility for the local authorities to decide which emission sources to include and which emission factors to use (e.g. local emission factors instead of the defaults provided in the guidelines).

Methodology for emission reductions: will be included in the guidelines for the most important measures.

¹⁰ When not included in EU emissions trading and not >20 MW of thermal input. The local authorities can decide to include also larger plants/units if they have carried out/are planning to carry out measures in these plants or units.

5. Signposting of existing methodologies

The existing methodologies are signposted according to their suitability for compilation of Baseline Emission Inventories under Covenant of Mayors. Each of the methodologies is evaluated against the signposting criteria, and is given one of the following marks:

- YES – method in agreement with and can be used for Baseline Emission Inventory
- PARTLY – the method is partly in agreement with specifications of Baseline Emission Inventory and can in certain circumstances be used for that purpose
- NO – method is not in agreement with specifications of Baseline Emission Inventory

The criteria used for signposting of existing methodologies are:

1. Tool – YES if a tool is available, NO if only description of methodology
2. Geographical boundaries
3. CO₂ emissions included
4. Scope for transportation
5. Methodology for transportation
6. Scope for energy sector (production and consumption of electricity, heat/cold, and other energy carriers)
7. Methodology for energy sector (e.g. electricity emission factor)

Table 2. Signposting of the existing methodologies

	Tool	Geographical boundaries	CO ₂	Scope for transportation	Methodology for transportation	Scope for energy sector	Methodology for energy sector
A	YES	YES	YES	YES	YES	PARTLY	PARTLY
B	YES	YES	YES	YES	YES	PARTLY	PARTLY
C	YES	NO	YES	NO	PARTLY	NO	PARTLY
D	NO	NO	YES	NO	PARTLY	NO	PARTLY
E*	YES	YES	YES	NO	PARTLY	PARTLY	PARTLY
F	YES	NO	YES	NO	NO	NO	NO
G	YES	YES	YES	YES	YES	PARTLY	PARTLY
H*	YES	YES	YES	YES	PARTLY	PARTLY	PARTLY
I	NO	YES	YES	YES	PARTLY	PARTLY	PARTLY

*The tool developers plan to modify the tool in a manner that it is fully in line with the Covenant of Mayors inventories in 2010

- A. Emission tracker tool (Project 2 degree, Clinton Climate Initiative)
- B. International Local Government GHG emission Analysis Protocol
- C. The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard
- D. The Greenhouse Gas Protocol: The GHG Protocol for Project Accounting
- E. ADEME tools: Bilan carbone
- F. California Climate Action Registry Project Protocols
- G. GRIP tool
- H. ECORregion
- I. Local and regional CO₂ emissions estimates for 2005-2006 for 2005-2006 for the UK

As presented in the table, most of the methodologies are accompanied with a tool, and are thus practical for the users¹¹. Furthermore, most of the tools would be suitable for compilation of the *Baseline Emission Inventory* from the point of view of boundaries, and all regarding inclusion of CO₂ emissions. Several tools are also suitable for the estimation of emissions from transportation in the *Baseline Emission Inventory*.

The methods used to estimate emissions from use and production of electricity, heat/cold and other energy carriers varies. Some of the methods do not include these emissions based on geopolitical boundary; some include only fuel combusted inside the geopolitical boundary, but not indirect emissions occurring due to production of electricity or heat outside the territory; and some include fuel combusted in the territory as Scope 1 emissions and electricity and heat used in the city as Scope 2 emissions, in which case summing up the two would lead to double counting.

As a conclusion, it appears that some tools are closer than others to the rules and principles set out in the context of the Covenant of Mayors¹². However, there is no intention to impose or restrict the usage of any specific tool. Therefore, any of the tools presented here (and also other existing tools that are deemed to be suitable) may be used for compilation of the Baseline Emission Inventory. However, local authorities are recommended to ensure that the results of the Baseline Emission Inventory compiled using such tools are in line with the specifications given in the SEAP template, related instructions and the SEAP guidelines.

¹¹ A detailed analysis of the practicability for users was not carried out.

¹² The developers of ADEME and ECORegion are planning to modify the tools so that they will be in line with Covenant of Mayors inventories in 2010.

ANNEX II.1. CONCLUSION OF THE CoM WORKSHOP (MAY 2009)

Session 3 – CO₂ emissions inventories and monitoring tools (19/05/2009)

In session 3, different methods and tools to compile CO₂ inventories in cities were presented. The methods and tools presented in detail were:

- The Greenhouse gas Regional Inventory Protocol (GRIP)
- ECORegion
- Bilan Carbone
- Tool for municipalities in Andalucia
- International Local Government Greenhouse Gas Emissions Analysis Protocol and Emissions Analysis Tools (ICLEI tool)

In addition, some presentations compared different available tools and methodologies.

The methods discussed vary regarding their coverage of sectors and gases, boundaries (geopolitical, organizational etc), scopes, data requirements and user interfaces. Some of the tools include only CO₂ from the energy sector, whereas others cover all Kyoto greenhouse gases and all sectors. A fundamental difference can be found between tools that are “traditional” emission inventory tools, and those that follow a life-cycle/carbon footprint approach.

A comparable carbon accounting methodology between municipalities should be necessary (globally and by some sectors and specific indicators), but at the same time a flexible framework for the different European regions and municipalities to adapt to their needs and different data availability.

Some of the tools also include examples of emission reduction activities or are designed to estimate emission reduction due to project activities.

In the discussion, some of the participants emphasized the importance of including also other GHGs than CO₂, especially CH₄ from landfills, and to express the results as CO₂ equivalents.

The complexity of estimation of road transport emissions was also discussed. Gathering of mileage data is challenging, and therefore some methods are based on the fuel sold in the municipality. However, an approach based on the mileage and average fuel consumption was considered as a priority despite the fact that several assumptions are needed. The methodologies also have different treatment of traffic that is crossing the municipality, for instance along main roads. Some participants preferred excluding these emissions as the local councils often do not have much impact on them, whereas others preferred territorial approach which includes all types of mobility within a geopolitical boundary.

The participants were informed that preliminary information on the Covenant inventory methodology, based on the workshop, will be made available at the CoM website in June. Draft guidelines for SEAP (including Covenant inventories) will be developed by September and there will be a separate workshop to discuss them.

EUR 24309 EN – Joint Research Centre – Institute for Energy

Title: Existing Methodologies and Tools for The Development And Implementation Of SEAPS

Author(s): Damian Bornás Cayuela, Ronald Piers de Raveschoot, Suvi Monni, Paolo Bertoldi

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Abstract

The Joint Research Centre - JRC (Institute for Energy and Institute for Environment and Sustainability) is providing technical and scientific support to the Covenant of Mayors project managed by DG ENER. This is a European initiative by which towns and cities voluntarily commit to reduce their CO₂ emissions beyond the EU target of 20%, through the implementation of Sustainable Energy Action Plans (SEAPs). The Local Authorities have to submit a Baseline Emissions Inventory (BEI) and a SEAP within one year after the formal adhesion to the Covenant of Mayors. In order to help Local Authorities to fulfil these commitments, a set of technical documents are being prepared.

As a first step, a research on existing methodologies and tools for SEAP elaboration and CO₂ emissions inventories at local level has been carried out. The present report which is a deliverable of the agreement between the JRC and DG ENER in the framework of the Covenant of Mayors, summarises the results of this research and is divided in two parts: existing methodologies and tools for SEAP elaboration (part I) and CO₂ emissions inventories at local level (part II). All these tools and methodologies have been collected from entities/cities with a proven experience in these fields. In addition, in both parts of the document, a signposting table that allows to compare the various existing methodologies and helps the Covenant signatories to choose the methodology most adapted to their requirements has been elaborated. One of this report's most relevant conclusions is the identification of the critical steps that have to be followed in order to secure a successful SEAP elaboration and implementation. These outcomes are the base of the next document, a guidebook called "How to develop a Sustainable Energy Action Plan" that intends to offer practical guidance to local authorities through the entire SEAP process.

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