Covenant of Mayors
Committed to local sustainable energy

How to develop a Sustainable Energy Action Plan

Part 1

HOW TO DEVELOP A SUSTAINABLE ENERGY ACTION PLAN (SEAP) – GUIDEBOOK

Part 1

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Glossary

Activity Data: Activity data quantifies the human activity occurring in the territory of the local authority.

Covenant signatory: Local authority that has signed the Covenant of Mayors.

Baseline year: Baseline year is the year against which the achievements of the emission reductions in 2020 shall be compared.

Baseline Emission Inventory (BEI): Quantifies the amount of CO_2 emitted due to energy consumption in the territory of the Covenant signatory in the baseline year.

Emission factors: Emission factors are coefficients which quantify the emission per unit of activity.

Certified green electricity: Electricity that meets the criteria for guarantee of origin of electricity produced from renewable energy sources set in Directive 2001/77/EC and updated in Directive 2009/28/EC.

Heating degree days (HDD): Denote the heating demand in a specific year.

Life cycle assessment (LCA): Method that takes into account emissions over the entire life cycle of the commodity. For example, life cycle emissions of oil include emissions from oil extraction, refining, transportation, distribution and combustion.

Local heat production: Production of heat in the territory of the local authority that is sold/distributed as a commodity to end users.

Local electricity production: (Small-scale) production of electricity in the territory of the local authority.

Monitoring Emission Inventory (MEI): Emission inventory that the local authority carries out to measure the progress towards target.

Per capita target: The local authority may decide to set the target as '*per capita*'. In that case, the emissions in the baseline year are divided by the population in that year, and the target for year 2020 is calculated on that basis.

Territory of the local authority: Geographical area within the administrative boundaries of the entity governed by the local authority.

PART I

The SEAP process, step-by-step towards the -20 % target by 2020

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CHAPTER 1
The sustainable energy action plan — A way to go beyond the EU targets

1.1 What is a SEAP?

The Sustainable Energy Action Plan (SEAP) is a key document that shows how the Covenant signatory will reach its commitment by 2020. It uses the results of the Baseline Emission Inventory to identify the best fields of action and opportunities for reaching the local authority's CO_2 reduction target. It defines concrete reduction measures, together with time frames and assigned responsibilities, which translate the long-term strategy into action. Signatories commit themselves to submitting their SEAPs within the year following adhesion.

The SEAP should not be regarded as a fixed and rigid document, as circumstances change, and, as the ongoing actions provide results and experience, it may be useful/necessary to revise the plan on a regular basis.

Remember that opportunities to undertake emission reductions arise with every new development project to be approved by the local authority. The impacts of missing such an opportunity can be significant and will last for a long time. This means that energy efficiency and emission reduction considerations should be taken into consideration for all new developments, even if the SEAP has not yet been finalised or approved.

1.2 Scope of the SEAP

The Covenant of Mayors concerns action at local level within the competence of the local authority. The SEAP should concentrate on measures aimed at reducing the CO_2 emissions and final energy consumption by end users. The Covenant's commitments cover the whole geographical area of the local authority (town, city, region). Therefore the SEAP should include actions concerning both the public and private sectors. However, the local authority is expected to play an exemplary role and therefore to take outstanding measures related to the local authority's own buildings and facilities, vehicle fleet, etc. The local authority can decide to set the overall CO_2 emission reduction target either as 'absolute reduction' or 'per capita reduction' (see chapter 5.2 of Part II of this Guidebook).

The main target sectors are buildings, equipment/facilities and urban transport. The SEAP may also include actions related to local electricity production (development of PV, wind power, CHP, improvement of local power generation), and local heating/cooling generation. In addition, the SEAP should cover areas where local authorities can influence energy consumption on the long term (as land use planning), encourage markets for energy efficient products and services (public procurement), as well as changes in consumption patterns (working with stakeholders and citizens)[1]. On the contrary, the industrial sector is not a key target of the Covenant of Mayors, so the local authority may choose to include actions in this sector or not. In any case, plants covered by the ETS (European CO_2 Emission Trading Scheme) should be excluded, unless they were included in previous plans of the local authority. A detailed description of the sectors to be covered in the Baseline Emission Inventory is provided in table 1 of Part II.

1.3 Time horizon

The time horizon of the Covenant of Mayors is 2020. Therefore, the SEAP has to contain a clear outline of the strategic actions that the local authority intends to take in order to reach its commitments in 2020. The SEAP may cover a longer period, but in this case it should contain intermediate values and objectives for the year 2020.

As it is not always possible to plan in detail concrete measures and budgets for such a long time span, the local authority may distinguish between:

- a vision, with long-term strategy and goals until 2020, including firm commitments in areas like land-use planning, transport and mobility, public procurement, standards for new/renovated buildings etc.;
- detailed measures for the next 3-5 years which translate the long-term strategy and goals into actions.

BOTH THE LONG-TERM VISION AND THE DETAILED MEASURES SHALL BE AN INTEGRAL PART OF THE SEAP

For example, as a long-term strategy, the local authority could decide that all cars purchased for the municipal fleet should be biogas operated. Of course, the municipality cannot vote the budget for all cars that will be purchased up until 2020, but they can include this measure in the plan and evaluate its impact till 2020, as a result of the estimated future purchases of cars by the municipality. For the duration of the local authority's political mandate, this measure should be presented in very practical terms, with budgets, identification of financing sources, etc.

It is also strongly suggested that measures related to the local authority's own buildings and facilities are implemented first, in order to set an example and motivate the stakeholders.

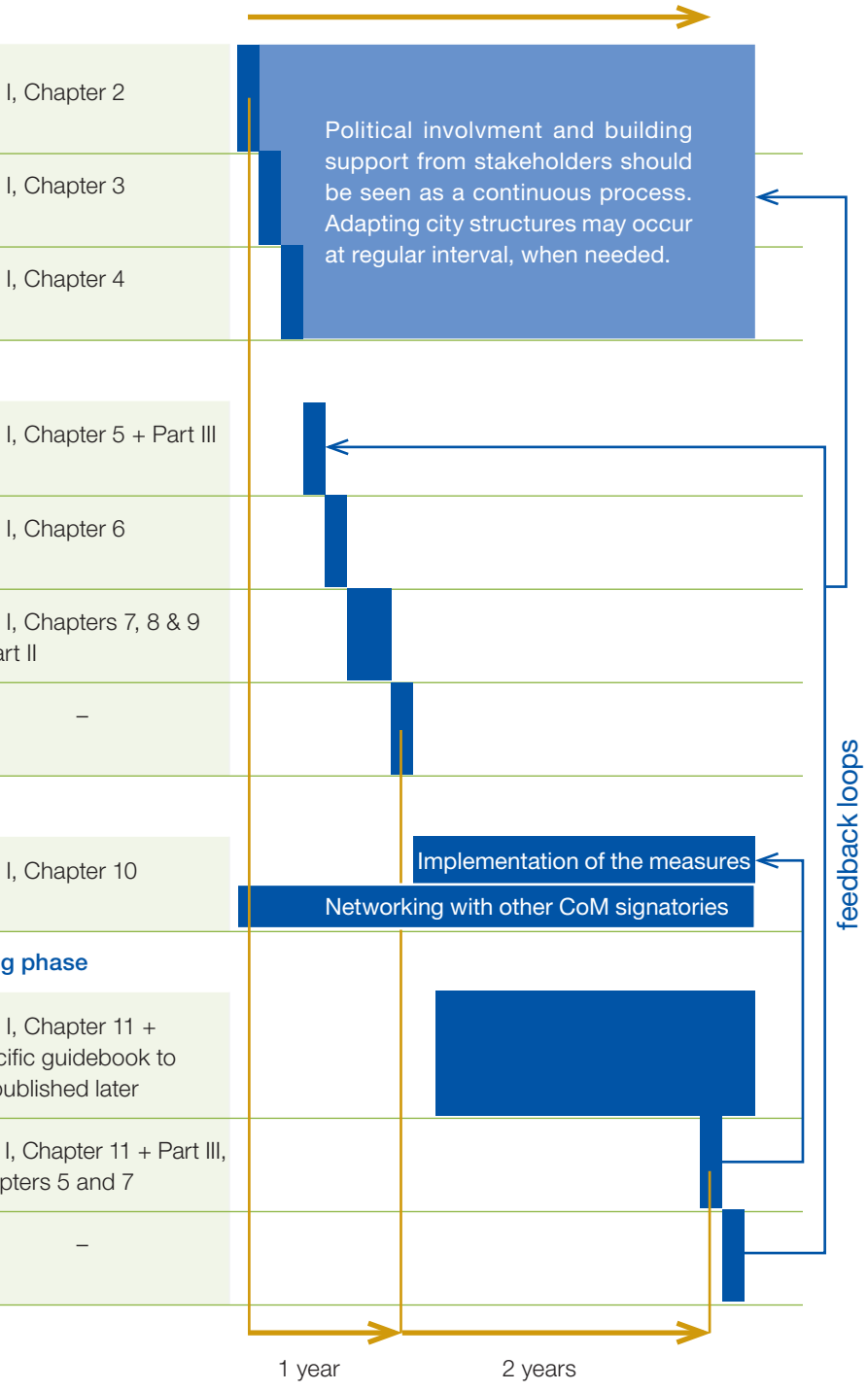
(1) *Note that the effect of such long term actions is not easy to evaluate or measure separately. Their effect will be reflected in the CO_2 emission inventory of the sector(s) they relate to (buildings, transport…). In addition, note that 'green purchases' not related to energy consumption cannot be taken into consideration in the inventory.*

1.4 The SEAP process

The following chart details the key steps for elaborating and implementing a successful SEAP. As shown in the graph, the SEAP process is not a linear one, and some steps may overlap with others. Besides, it is possible that some actions may have started before the adhesion to the Covenant (not shown in the graph).

THE SEAP PROCESS: PHASING OF THE DIFFERENT STEPS

STEP	CORRESPONDING GUIDEBOOK CHAPTER
PHASE: Initiation	
Political commitment and signing of the Covenant	Part I, Chapter 2
Adapt city administrative structures	Part I, Chapter 3
Build support from stakeholders	Part I, Chapter 4
PHASE: Planning phase	
Assessment of the current framework (*): Where are we?	Part I, Chapter 5 + Part III
Establishment of the vision: Where do we want to go?	Part I, Chapter 6
Elaboration of the plan: How do we get there?	Part I, Chapters 7, 8 & 9 + Part II
Plan approval and submission	–
PHASE: Implementation phase	
Implementation	Part I, Chapter 10
PHASE: Monitoring and reporting phase	
Monitoring	Part I, Chapter 11 + specific guidebook to be published later
Reporting and submission of the implementation report	Part I, Chapter 11 + Part III, Chapters 5 and 7
Review	–



(*) *Including the elaboration of the CO_2 baseline emission inventory.*

1.5 Human and financial resources

SEAP elaboration and implementation requires human and financial resources. Local authorities may adopt different approaches:

- using internal resources, for example by integrating the tasks in an existing department of the local authority involved in sustainable development (e.g. local Agenda 21 office, environmental and/or energy department);
- setting up a new unit within the local administration (approx 1 person/100 000 inhabitants);
- outsourcing (e.g., private consultants, universities…);
- sharing one coordinator among several municipalities, in the case of smaller local authorities;
- getting support from regional energy agencies or Supporting Structures (see chapter 3).

Note that the human resources allocated to the SEAP may be highly productive from a financial point of view, via savings on the energy bills, access to European funding for the development of projects in the field of EE and RES.

In addition, extracting as much as possible resources from inside offers the advantages of a higher ownership, saves costs and supports the very materialisation of a SEAP.

1.6 SEAP template and SEAP submission procedure

Covenant signatories commit to submitting their SEAPs within the year following adhesion and to provide periodic implementation reports outlining the progress of their action plan.

The SEAP must be approved by the municipal council (or equivalent decision-making body) and uploaded in national language via the Signatories' Corner (on-line password-restricted area). Covenant signatories will be required, at the same time, to fill in an online SEAP template in English. This will allow them to summarise the results of their Baseline Emission Inventory as well as the key elements of their SEAP.

Moreover, the template is a valuable tool that provides visibility to the SEAP that facilitates its assessment, as well as the exchange of experience between the Covenant signatories. Highlights of the information collected will be shown on-line in the Covenant of Mayors website (**www.eumayors.eu**).

Should a group of adjoining Covenant of Mayors´ cities want to elaborate a common SEAP and Baseline Emissions Inventory (BEI), they are allowed to do it as long as a Supporting Structure is coordinating the work. In this case cities can submit only one SEAP and BEI, but each city has to fill in its own template. The objective of reducing 20 % of the CO_2 emissions by 2020 is not shared by the group of cities as it remains an individual objective of each signatory. The emissions´ reductions corresponding to the common measures proposed in the SEAP will be divided among each city sharing these measures.

The SEAP template is available on-line as an internet-based tool that the Covenant signatories are required to fill in themselves. Detailed information on how to fill in the SEAP template is available by clicking on the 'Instructions' link directly accessible in the Signatories' Corner.

A public copy of the SEAP template and supporting instructions document are available in the Covenant of Mayors website library:
http://www.eumayors.eu/library/documents_en.htm

1.7 Recommended SEAP structure

The Covenant signatories could follow the structure of the SEAP template when preparing their Sustainable Energy Action Plans. The suggested content is:

1. SEAP Executive Summary
2. Overall strategy
   A. Objective (s) and Targets
   B. Current framework and vision for the future
   C. Organisational and financial aspects:
   - coordination and organisational structures created/assigned;
   - staff capacity allocated;
   - involvement of stakeholders and citizens;
   - budget;
   - foreseen financing sources for the investments within your action plan;
   - planned measures for monitoring and follow-up.
3. Baseline Emission Inventory and related information, including data interpretation (see Part II of this Guidebook, chapter 5 Reporting and documentation)
4. Planned actions and measures for the full duration of the plan (2020)
   - long-term strategy, goals and commitments till 2020;
   - short/medium term actions.

   For each measure/action, please specify (whenever possible):
   - description
   - department responsible, person or company
   - timing (end-start, major milestones)
   - cost estimation
   - estimated energy saving/increased renewable energy production
   - estimated CO_2 reduction

1.8 Level of detail

The level of detail in the description of each measure/action is to be decided by the local authority. However, bear in mind that the SEAP is at the same time:

- a working instrument to be used during implementation (at least for the next few years);
- a communication tool towards the stakeholders;
- a document that is agreed at the political level by the various parties in charge within the local authority: the level of detail should be sufficient to avoid further discussion at the political level over the meaning and scope of the various measures.

1.9 Key elements of a successful SEAP

- Build support from stakeholders: if they support your SEAP, nothing should stop it! Conflicting stakeholders' interests deserve special attention.
- Secure a long-term political commitment.
- Ensure adequate financial resources.
- Do a proper CO_2 emissions inventory as this is vital. What you do not measure you will not change.
- Integrate the SEAP into day-to-day life and management of the municipality: it should not be just another nice document, but part of the corporate culture!
- Ensure proper management during implementation.
- Make sure that your staff has adequate skills, and if necessary offer training.
- Learn to devise and implement projects over the long term.
- Actively search and take advantage of experiences and lessons learned from other cities that have developed a SEAP.

1.10 Ten key elements to keep in mind when preparing your SEAP

As a summary of what is presented in this guidebook, here are the 10 essential principles that you should keep in mind when elaborating your SEAP. These principles are linked to the commitments taken by the Covenant signatories and *constitute* key ingredients of success. Failure to meet these principles may prevent SEAP validation.

1. **SEAP approval by the municipal council (or equivalent decision-making body)**
   Strong political support is essential to ensure the success of the process, from SEAP design to implementation and monitoring (2). This is why the SEAP must be approved by the municipal council (or equivalent decision-making body).

2. **Commitment for a reduction of CO_2 emissions by at least 20 % by 2020**
   The SEAP must contain a clear reference to this core commitment taken by the local authority when signing the Covenant of Mayors. The recommended baseline year is 1990, but if the local authority does not have data to compile a CO_2 inventory for 1990, then it should choose the closest subsequent year for which the most comprehensive and reliable data can be collected. The overall CO_2 reduction commitment has to be translated into concrete actions and measures together with the CO_2 reduction estimates in tons by 2020 (SEAP template part 3). For the local authorities that have a longer term CO_2 reduction target (for example by 2030) they should set an intermediary target by 2020 for the reasons of comparability.

3. **CO_2 baseline emission inventory (BEI)**
   The SEAP should be elaborated based on a sound knowledge of the local situation in terms of energy and greenhouse gas emissions. Therefore, an assessment of the current framework should be carried out (3). This includes the establishment of a CO_2 baseline emission inventory (BEI), which is a key CoM commitment (4). The BEI has to be included in the SEAP.

(2) *See chapter 3 of part I of the SEAP guidebook for guidance on political commitment.*

(3) *See chapter 3 of part I of the SEAP guidebook for guidance on assessment of the current framework.*

(4) *See Part II of the SEAP guidebook for guidance on how to elaborate the CO_2 emission inventory.*

The BEI and subsequent inventories are essential instruments that allow the local authority to have a clear vision of the priorities for action, to evaluate the impact of the measures and determine the progress towards the objective. It allows to maintain the motivation of all parties involved, as they can see the result of their efforts. Here are some specific points of attention:

- The BEI has to be relevant to the local situation, i.e. based on energy consumption/production data, mobility data etc within the territory of the local authority. Estimates based on national/regional averages would not be appropriate in most cases, as they do not allow to capture the efforts made by the local authority to reach its CO_2 targets.
- The methodology and data sources should be consistent through the years.
- The BEI must cover at least the sectors in which the local authority intends to take action to meet the emission reduction target, i.e. all sectors that represent significant CO_2 emission sources: residential, municipal and tertiary buildings and facilities, and transport.
- The BEI should be accurate, or at least represent a reasonable vision of the reality.
- The data collection process, data sources and methodology for calculating the BEI should be well documented (if not in the SEAP then at least in the local authority's records).

4. Comprehensive measures that cover the key sectors of activity

The commitment taken by the signatories concerns the reduction of the CO_2 emissions *in their respective territories*. Therefore, the SEAP has to contain a coherent set of measures covering the key sectors of activity: not only the buildings and facilities that are managed by the local authority, but also the main sectors of activity in the territory of the local authority: residential sector, tertiary sector, public and private transport, industry (optional) etc (5). Before starting the elaboration of actions and measures, the establishment of a long-term vision with clear objectives is highly recommended (6). The SEAP guidebook contains many suggestions of policies and measures that can be applied at the local level (7).

5. Strategies and actions until 2020

The plan must contain a clear outline of the strategic actions that the local authority intends to take in order to reach its commitments in 2020. It has to contain:

- The long-term strategy and goals until 2020, including firm commitments in areas like land-use planning, transport and mobility, public procurement, standards for new/renovated buildings, etc.
- Detailed measures for the next 3-5 years which translate the long-term strategy and goals into actions. For each measure/action, it is important to provide a description, the department or person responsible, the timing (start-end, major milestones), the cost estimation and financing/source, the estimated energy saving/increased renewable energy production and the associated estimated CO_2 reduction.

6. Adaptation of city structures

One of the ingredients of success is that the SEAP process is not conceived by the different departments of the local administration as an external issue, but that it is be integrated in their everyday lie. This is why 'adapt city structures' is another key CoM commitment (8). The SEAP should outline which structures are in place or will be organised in order to implement the actions and follow the results. It should also specify what are the human resources made available.

7. Mobilisation of the civil society

To implement and achieve the objectives of the plan, the adhesion and participation of the civil society is essential (9). The mobilisation of the civil society is part of the CoM commitments. The plan has to describe how the civil society has been involved in its elaboration, and how they will be involved in implementation and follow up.

8. Financing

A plan cannot be implemented without financial resources. The plan should identify the key financing resources that will be used to finance the actions (10).

(5) *See chapter 2 of Part II of the SEAP guidebook for more advise on the sectors to be covered.*

(6) *See chapter 6 of Part I of the SEAP guidebook for guidance on the establishment of a vision and objectives.*

(7) *In particular, see chapter 8 of Part I, and Part III.*

(8) *See chapter 3 of Part I of the SEAP guidebook for guidance on city structures adaptation.*

(9) *See chapter 4 of Part I of the SEAP guidebook for guidance on the mobilisation of the civil society.*

(10) *See chapter 4 of Part I of the SEAP guidebook for guidance on how to finance the SEAP.*

9. Monitoring and reporting

Regular monitoring using relevant indicators followed by adequate revisions of the SEAP allows to evaluate whether the local authority is achieving its targets, and to adopt corrective measures if necessary. CoM signatories are therefore committed to submit an 'Implementation Report' every second year following the submission of the SEAP. A specific guidebook will be published in 2010. The SEAP should contain a brief outline on how the local authority intends to ensure the follow-up of the actions and monitor the results [11].

10. SEAP submission and filling the template

Covenant signatories commit to submitting their SEAPs within the year following adhesion. The SEAP must be uploaded in national language (or in English) via the Covenant of Mayor's website. Signatories are required, at the same time, to fill in an online SEAP template in English. This will allow them to summarise the results of their Baseline Emission Inventory as well as the key elements of their SEAP.

The template has to be filled carefully with sufficient level of detail, and should reflect the content of the SEAP, which is a politically approved document. A specific instruction document for filling in the template is available on the Covenant website.

[11] *See chapter 10 of Part I of the SEAP guidebook for guidance on Monitoring and reporting.*

CHAPTER 2
Political commitment

To ensure the success of the process (from SEAP design to implementation and monitoring), it is essential that sufficient empowerment and support is provided at the highest political level. The signature of the Covenant of Mayors by the municipal council (or equivalent decision-making body) is already a clear and visible sign of commitment. In order to reinforce the political support, it may be useful to give a reminder regarding the many benefits that SEAP implementation can bring to local authorities (see Annex II).

WHY DO MAYORS JOIN THE COVENANT?

'…To show that **local authorities already act and lead the fight against climate change.** The States need them to meet their Kyoto objectives and should therefore support them in their efforts…'
Denis Baupin, Deputy Mayor, Paris (FR)

'…To become **a strong partner of the European Commission** and influence adoption of policies and measures which help cities to achieve their Covenant objectives…'
Lian Merx, Deputy Mayor, Delft (NL)

'…To **meet people with the same ambitions**, get motivation, learn from each other…'
Manuela Rottmann, Deputy Mayor, Frankfurt am Main (DE)

'…To support the movement that obliges cities to meet their objectives, allows to monitor results and **involves EU citizens** – because it is their movement…'
Philippe Tostain, Councillor, Lille (FR)

The key decision-makers of the local authority should further support the process by allocating adequate human resources with clear mandate and sufficient time and budget to prepare and implement the SEAP. It is essential that they are involved in the SEAP elaboration process so that it is accepted and backed up by them. Political commitment and leadership are driving forces that stimulate the management cycle. Therefore they should be sought from the very beginning. The formal approval of the SEAP by the municipal council (or equivalent decision-making body), along with the necessary budgets for the first year(s) of implementation is another key step.

As the highest responsible entity and authority, the municipal council must be closely informed of the follow-up of the implementation process. An implementation report should be produced and discussed periodically. In the context of the Covenant, an implementation report has to be submitted every second year for evaluation, monitoring and verification purposes. If necessary, the SEAP should be updated accordingly.

Finally, the key decision-makers of the local authority could also play a role in:

- integrating the SEAP vision with the other actions and initiatives of the relevant municipality departments and making sure it becomes part of the overall planning;
- assuring the long-term commitment to implementation and monitoring, along the full duration of the SEAP;
- providing support to citizens' participation and stake-holders' involvement;
- ensure that the SEAP process is 'owned' by the local authority and the residents;
- networking with other CoM signatories, exchanging experience and best practices, establishing synergies and encouraging their involvement in the Covenant of Mayors.

There is no single route leading to political commitment. Administrative structures, patterns of political approval and political cultures vary from country to country. For such reason, the local authority itself is best suited to know how to proceed to raise the political commitment needed for the SEAP process, i.e. who to contact and in which order (Mayor, municipal council, specialised committees…).

SUGGESTIONS ON HOW TO ENSURE THE NECESSARY LOCAL COMMITMENT:

- Provide Mayor and key political leaders with informative notes about the benefits and resources needed for SEAP. Make sure documents presented to political authorities are short, comprehensive and understandable.
- Brief major political groups.
- Inform and involve general public/citizens and other stakeholders.
- Make a strong reference to the other decisions taken by the municipal council in this field (related strategies and plans, Local Agenda 21, etc.).
- Take advantage of windows of opportunity, for example when the media is focusing on climate change issues.
- Inform clearly about the causes and effects of climate change along with information about effective and practical responses.
- Highlight the other benefits than contribution to climate change (social, economic, employment, air quality, …). Keep the message simple, clear and tailored to the audience.
- Focus on measures on which the agreement of the key actors can be obtained.

Additional ressources

1. MUE-25 PROJECT: The project 'Managing Urban Europe-25 (MUE-25)' provides some suggestions on how to build political commitment.
   http://www.mue25.net/Political_Commitment_200907_t1z4D.PDF.file
2. The Policy Network, in its publication 'Building a low carbon future: the politics of climate change', dedicates a chapter to political strategies for strengthening climate policies:
   http://politicsofclimatechange.files.wordpress.com/2009/06/building-a-low-carbon-future-pamphlet-chapter-05.pdf

CHAPTER 3
Adapting administrative structures (12)

Devising and implementing a sustainable energy policy is a challenging and time-demanding process that has to be systematically planned and continuously managed. It requires collaboration and coordination between various departments in the local administration, such as environmental protection, land use and spatial planning, economics and social affairs, buildings and infrastructure management, mobility and transport, budget and finance, procurement, etc. In addition, one of the challenges for success is that the SEAP process should not be conceived by the different departments of the local administration as an external issue, but that it has to be integrated in their everyday life: mobility and urban planning, management of the local authority's assets (buildings, municipal fleet, public lighting…), internal and external communication, public procurement…

A clear organisational structure and assignment of responsibilities are prerequisites for the successful and sustainable implantation of the SEAP. A lack of coordination between the various policies, local authority departments and external organisations has been a considerable shortcoming in the energy or transport planning of many local authorities.

This is why *'Adapting city structures, including allocation of sufficient human resources'* is a formal commitment of those signing the Covenant of Mayors.

Therefore, all Covenant signatories should adjust and optimise their internal administrative structures. They should assign specific departments with appropriate competencies as well as sufficient financial and human resources to implement the Covenant of Mayors' commitments.

3.1 How to adjust administrative structures

Where organisational structures have already been created for other related policies (energy management unit, local Agenda 21 coordination, etc.), they may be used in the context of the Covenant of Mayors.

At the beginning of the SEAP elaboration process, a 'Covenant coordinator' should be appointed. She/he must have full support of the local political authorities and from the hierarchy, as well as the necessary time availability, and the budgetary means to carry out his/her tasks. In large cities, she/he could even have a dedicated unit at his/her disposal, with several staff. Depending on the size of the local authority, one person dedicated to data collection and CO_2 inventory may also be necessary.

As an example of simple organisation structure, two groups may be constituted:

- A steering committee, constituted by politicians and senior managers. Its mission would be to provide strategic direction and the necessary political support to the process.
- One or several working group(s), constituted by the energy planning manager, key persons from various departments of the local authority, public agencies, etc. Their task would be to undertake the actual SEAP elaboration and follow up work, to ensure stakeholders' participation, to organise monitoring, to produce reports, etc. The working group(s) may be opened to the participation of non-municipal key actors directly involved in SEAP actions.

Both the steering committee and the working group need a distinct leader, although they should be able to work together. Moreover, the objectives and functions of each one of these groups must be clearly specified. A well-defined meeting agenda and a project-reporting strategy are recommendable in order to have a good command over the SEAP process. The steering committee and the working group each need a leader, able to work together.

It is essential that sustainable energy management is integrated with the other actions and initiatives of the relevant municipality departments, and it must be ensured that it becomes part of the overall planning of the local authority. Multi-departmental and cross-sectoral involvement is required, and organisational targets need to be in line and integrated with the SEAP. The establishment of a flow chart, indicating the various interactions between departments and actors, would be useful to identify the adjustments that may be necessary to the local authority's organisation. As many key municipal players as possible should be assigned responsible roles to ensure strong ownership of the process in the organisation. A specific communication campaign may help reach and convince the municipal workers in different departments.

Moreover, adequate training should not be neglected in different fields, such as technical competencies (energy efficiency, renewable energies, efficient transport…), project management, data management (lack of skills in this field can be a real barrier!), financial management, development of investment projects, and communication (how to promote behavioural changes, etc). Linking with local universities can be useful for this purpose.

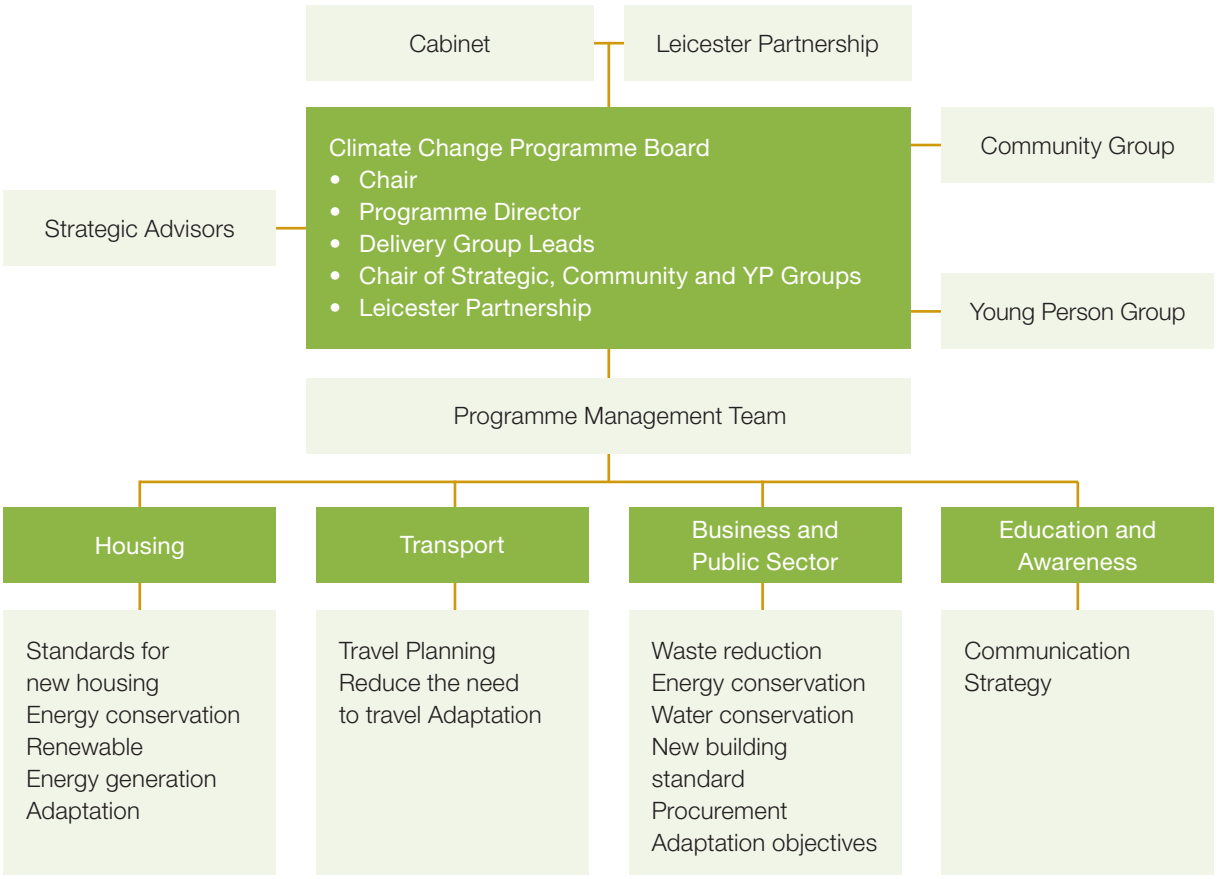
(12) *Parts of this chapter are adapted from* ***http://www.movingsustainably.net/index.php/movsus:mshome*** *developed by the Union of the Baltic Cities Environment and Sustainable Development Secretariat and part-funded by the European Union. Further information about capacity-building and previous experiences are available in the MODEL project webpage* ***www.energymodel.eu***

3.2 Examples from Covenant signatories

Here are two examples of structures that the cities of Munich and Leicester respectively set up for developing and implementing their local energy strategies:

FIGURE 1: ADMINISTRATIVE STRUCTURE OF THE CITY OF MUNICH

FIGURE 2: ADMINISTRATIVE STRUCTURE OF THE CITY OF LEICESTER



3.3 External support

Depending on their size and human resources availability, local authorities may benefit from the assistance of Supporting Structures or energy agencies. It is even possible for them to subcontract some specific tasks (e.g. compilation of a Baseline Emission Inventory) or to use interns (Masters or PhD students can do much of the work associated with the collection of data and entry into a GHG calculation tool to produce the BEI).

Supporting Structures

Local authorities, which do not have sufficient skills or resources to draft and implement their own SEAP, should be supported by administrations or organisations with such capacities. Supporting Structures are in a position to provide strategic guidance and financial and technical support to local authorities with political will to sign up to the Covenant of Mayors, but lacking the skills and/or the resources to fulfil its requirements.

Supporting Structures also have a vocation to keep a close contact with the European Commission and the Covenant of Mayors' Office to ensure the best possible implementation of the Covenant. Thus, Supporting Structures are officially recognised by the Commission as key allies in conveying the message and increasing the impact of the Covenant.

There are two types of Supporting Structures:

1. National and regional public bodies, regions, counties, provinces, agglomerations.
2. Networks or associations of regional or local authorities.

Supporting Structures can offer direct technical and financial assistance such as:

- mobilising technical expertise in order to help Covenant signatories preparing their Baseline Emissions Inventory (BEI) or Sustainable Energy Action Plan (SEAP);
- developing or adapting methodologies for preparing SEAP, taking into account the national or regional context;
- identifying financial opportunities for the SEAP implementation;
- training local officials, who will be the final SEAP owners (type 1 Supporting Structures).

Some concrete examples:

- The Region of Andalucía has undertaken an Emission Inventory on its territory that will be used by Covenant Signatories of the region to prepare their SEAP.
- The Polish Network of Energy Cities (PNEC) is providing direct technical support to four Polish cities willing to join the Covenant of Mayors in 2009. This support is based on the methodology developed under the European-funded project MODEL (Management Of Domains related to Energy in Local authorities).
- The Province of Barcelona, while directly financing the development of SEAPs of the Signatories it supports, is also preparing a programme under the European Local Energy Assistance facility to develop Photovoltaic systems which will benefit those municipalities.

Energy agencies

Local and Regional Energy Agencies (LAREAs) have been active in local energy policy for decades and their knowledge and expertise could be very useful for the Covenant signatories, especially those lacking the technical capacities.

In fact, one of the first activities of each agency is to prepare an energy plan, or to update existing ones in the geographical area covered by the Agency. This strategic process usually comprises several steps, including the collection of energy data, the establishment of an energy balance, as well as the development of short-, medium- and long-term energy policies and plans. Hence, Covenant signatories can expect their Local and Regional Energy Agencies (LAREAs) to give wide-ranging advice on all energy aspects, as well as useful technical assistance in the design of their BEI and SEAP.

Additional ressources

1. Ireland's national energy agency (SEI), provides a link with guidance to 'Resourcing the Energy Management Programme'
   http://www.sustainableenergyireland.ie/uploadedfiles/EnergyMAP/tools/01-10a%20Resourcing%20the%20Energy%20Management%20Programme%20v1.0.pdf

CHAPTER 4
Building support from stakeholders (13)

All members of society have a key role in addressing the energy and climate challenge with their local authorities. Together, they have to establish a common vision for the future, define the paths that will make this vision come true, and invest the necessary human and financial resources.

Stakeholders' involvement is the starting point for stimulating the behavioural changes that are needed to complement the technical actions embodied in the SEAP. This is the key to a concerted and co-ordinated way to implement the SEAP.

The views of citizens and stakeholders should be known before detailed plans are developed. Therefore, citizens and other stakeholders should thus be involved and be offered the opportunity to take part in the key stages the SEAP elaboration process: building the vision, defining the objectives and targets, setting the priorities, etc. There are various degrees of involvement: 'informing' is at one extreme whilst 'empowering' is at the other. To make a successful SEAP, it is highly recommended to seek the highest level of participation of stakeholders and citizens in the process.

Stakeholders' participation is important for various reasons:

- participatory policy-making is more transparent and democratic;
- a decision taken together with many stakeholders is based on more extensive knowledge;
- broad consensus improves the quality, acceptance, effectiveness and legitimacy of the plan (at least it is necessary to make sure that stakeholders do not oppose some of the projects);
- sense of participation in planning ensures the long-term acceptance, viability and support of strategies and measures;
- SEAPs may sometimes get stronger support from external stakeholders than from the internal management or staff of the local authority.

For these reasons, to *'Mobilise the civil society in our geographical areas to take part in developing the action plan'* is a formal commitment of those signing the Covenant of Mayors.

4.1 Who are stakeholders?

The first step is to identify the main stakeholders.
The stakeholders are those:

- whose interests are affected by the issue;
- whose activities affect the issue;
- who possess/control information, resources and expertise needed for strategy formulation and implementation;
- whose participation/involvement is needed for successful implementation.

The following table shows the potential roles that the local authority and the stakeholders can play in the SEAP process outlined in chapter 1.

Here is a list of potentially important stakeholders in the context of a SEAP:

- local administration: relevant municipal departments and companies (municipal energy utilities, transport companies, etc.);
- local and regional energy agencies;
- financial partners such as banks, private funds, ESCOs (14);
- institutional stakeholders like chambers of commerce, chambers of architects and engineers;
- energy suppliers, utilities;
- transport/mobility players: private/public transport companies, etc.;
- the building sector: building companies, developers;
- business and industries;
- supporting Structures and energy agencies;
- NGOs and other civil society representatives;
- representatives of the civil society, including students, workers etc.;
- existing structures (Agenda 21, …);
- universities;
- knowledgeable persons (consultants, …);
- where relevant, representatives of national/regional administrations and/or neighbouring municipalities, to ensure coordination and consistency with plans and actions that take place at other levels of decision;
- tourists, where the tourist industry represents a large share of the emissions.

(13) *Parts of this chapter are adapted from* ***http://www.movingsustainably.net/index.php/movsus:mshome*** *developed by the Union of the Baltic Cities Environment and Sustainable Development Secretariat and part-funded by the European Union.*

(14) *ESCO is the acronym of Energy Services Companies.*

THE SEAP PROCESS: THE MAIN STEPS – ROLE OF THE KEY ACTORS			
STEP	ROLE OF THE ACTORS		
	Municipal council or equivalent body	Local administration	Stakeholders
PHASE: Initiation			
Political commitment and signing of the Covenant	Make the initial commitment. Sign the Covenant of Mayors. Provide the necessary impulse to the local administration to start the process.	Encourage the political authorities to take action. Inform them about the benefits (and about the necessary resources).	Make pressure on political authorities to take action (if necessary).
Adapt city administrative structures	Allocate sufficient human resources and make sure adequate administrative structures are in place.		
Build support from stakeholders	Provide the necessary impulse for stakeholders' participation. Show that you consider their participation and support as important.	Identify the main stakeholders, decide what channels of communication/ participation you want to use. Inform them about the process that is going to start, and collect their views.	Express their views, explain their potential role in SEAPs.
PHASE: Planning phase			
Assessment of the current framework: Where are we?	Make sure the necessary resources are in place for the planning phase.	Conduct the initial assessment, collect the necessary data, and elaborate the CO_2 baseline emission inventory. Make sure the stakeholders are properly involved.	Provide valuable inputs and data, share the knowledge.
Establishment of the vision: Where do we want to go?	Support the elaboration of the vision. Make sure it is ambitious enough. Approve the vision (if applicable).	Establish a vision and objectives that support the vision. Make sure it is shared by the main stakeholders and by the political authorities.	Participate in the definition of the vision, express their view on the city's future.
Elaboration of the plan: How do we get there?	Support the elaboration of the plan. Define the priorities, in line with the vision previously defined.	Elaborate the plan: define policies and measures in line with the vision and the objectives, establish budget and financing, timing, indicators, responsibilities. Keep the political authorities informed, and involve stakeholders. Make partnerships with key stakeholders (if necessary).	Participate in the elaboration of the plan. Provide input, feedback.
Plan approval and submission	Approve the plan and the necessary budgets.	Submit the SEAP via the CoMO website. Communicate about the plan.	Make pressure on political authorities to approve the plan (if necessary).

STEP	ROLE OF THE ACTORS		
	Municipal council or equivalent body	Local administration	Stakeholders
PHASE: Implementation phase			
Implementation	Provide long-term political support to the SEAP process.	Coordinate the implementation plan. Make sure each stakeholder is aware of its role in the implementation.	Each stakeholder implements the measures that are under its responsibility.
	Make sure that the energy and climate policy is integrated in the every day life of the local administration.	Implement the measures that are under responsibility of the local authority. Be exemplary. Communicate about your actions.	Make pressure/encourage the local administration to implement the measures under its responsibility (if necessary).
	Show interest in the plan implementation, encourage stakeholders to act, show the example.	Motivate the stakeholders to act (information campaigns). Inform them properly about the resources available for EE and RES.	Changes in behaviour, EE and RES action, general support to SEAP implementation.
	Networking with other CoM signatories, exchanging experience and best practices, establishing synergies and encouraging their involvement in the Covenant of Mayors.		Encourage other stakeholders to act.
PHASE: Monitoring and reporting phase			
Monitoring	Ask to be informed regularly about the advancement of the plan.	Proceed to a regular monitoring of the plan: advancement of the actions and evaluation of their impact.	Provide the necessary inputs and data.
Reporting and submission of the implementation report	Approve the report (if applicable).	Report periodically to the political authorities and to the stakeholders about the advancement of the plan. Communicate about the results. Every second year, submit an implementation report via the CoMO website.	Provide comments on the report and report on the measures under their responsibility.
Review	Ensure that plan updates occur at regular intervals.	Periodically update the plan according to the experience and the results obtained. Involve political authorities and stakeholders.	Participate in plan update.

4.2 How to engage in stakeholder participation

Participation can be obtained through a variety of methods and techniques, and it may be useful to make recourse to a (professional) animator as a neutral moderator. Different levels of participation and tools may be considered (*):

	DEGREE OF INVOLVEMENT	EXAMPLES OF TOOLS
1.	Information and education	Brochures, newsletters, advertisement, exhibitions, site visits.
2.	Information and feedback	Telephone hotline, website, public meetings, teleconferences, surveys and questionnaires, staffed exhibitions, deliberative polls.
3.	Involvement and consultation	Workshops, focus groups, forums, open house.
4.	Extended involvement	Community advisory committees, planning for real, citizen's juries.

EXAMPLE 1

A local energy forum is a local authority driven participatory process, which engages local stakeholders and citizens to work together in order to prepare and implement common actions that can be formalised into an Action Plan. Such forums are already used by some Covenant Signatories. For example Almada (Portugal) organised a local energy forum and invited all interested companies and organisations in order to gather ideas and project proposals that could contribute to their Action Plan. A partnership with a local energy agency and a university was established to develop their plan. Similarly the city of Frankfurt (Germany) asked the forum participants to make their own contributions to meet common energy targets and propose concrete actions to be carried out.

EXAMPLE 2

The municipality of Sabadell (Spain) raised the awareness of citizens by providing smart meters to 100 households. Such meters give an instant reading of energy consumption in euro, kWh and tonnes of CO_2, via a wireless device. Besides, workshops were organised to inform and educate households in relation with energy saving. The data related to energy consumption and CO_2 emissions were collected and the reduction achieved was calculated (expected around 10 % of reduction). Finally, the results were communicated to the families.

EXAMPLE 3

The following methods have been employed at the Greater London Authority during the delivery of the London Mayor's environmental strategies, in order to engage multiple stakeholders in the process:

Public Participation Geographic Information Systems (PPGIS) was used to empower and include marginalized populations (e.g., ethnic groups, young and old people), who normally have little voice in the public arena, through interactive participation and integrated applications of GIS (in a user-friendly format), to change involvement and awareness of the SEAP at a local level. Simplified GIS-based maps and models could be used to visualise the effects of the SEAP at local levels in order to facilitate interactive participation and further promote community advocacy in the SEAP's strategic decision making processes. The use of PPGIS's transparent tools and participative process helped to build trust and understanding between professionally and culturally diverse stakeholders.

Problem Structuring Methods (PSMs) was used to build simple SEAP models in a participative and iterative manner to help stakeholders with distinctive perspectives or conflicting interests to understand and secure shared commitments to the SEAP; embrace value differences, rather than trade-off; represent the complexities of the SEAP diagrammatically not by algebra; appraise and compare discrete strategic alternatives; and also address uncertainty in terms of 'possibilities' and 'scenarios' rather than in terms of 'probability' and 'prediction' only. Cognitive mapping (a means of mapping individual stakeholders' perspectives) can also be used as a modelling device to elicit and record individuals' view of the SEAP. The merged cognitive maps will provide the framework for workshop discussions aimed at assessing the SEAP's objectives and generating agreement on a portfolio of actions.

(*) *Adapted from Judith Petts and Barbara Leach, Evaluating methods for public participation: literature review, Bristol Environment Agency, 2000.*

The roles and responsibilities of each player have to be specified. Partnerships with key actors are often necessary in developing and implementing a successful SEAP. Further communication about SEAP implementation results will be necessary to maintain motivation of stakeholders.

SOME PRACTICAL TIPS:

- Think big: Do not focus on the usual contacts.
- Get decision-makers on board.
- Choose an appropriate facilitator/moderator.
- Some stakeholders can have conflicting interests. In this case it is advisable to organise workshops for each particular group separately to understand the conflicting interests before bringing them together.
- In order to raise the interest of the citizens, it is recommended to use visual tools (GIS tool showing the energy efficiency of the various districts of the local authority, aerial thermography showing thermal losses of individual buildings, or any simple model, which allows to show visually the data being presented).
- Attract media attention.

4.3 Communication

Communication is an essential means to keep the stakeholders informed and motivated. Therefore, a clear communication strategy should be integrated in the SEAP. Before initiating a communication campaign, some information should be specified in order to maximise the impact of the action.

- Specify the message to be transmitted and the effect to be produced (desired outcome).
- Identify the key audience.
- Establish a set of indicators to evaluate the impact of the communication (head count at a seminar, surveys – quantitative/qualitative, hits on website, feedback, e.g. e-mails, …).
- Specify the most appropriate communication channel(s) (face to face – most effective form of communication, advertising, mail, e-mail, internet, blogs, talks/meetings, brochures, posters, newsletters, printed publications, media releases, sponsorship…).
- Specify planning and budget.

Communication can also be internal to the local authority: setting up internal communication means may be necessary to improve collaboration between the departments involved within the local authority.

Additional ressources

1. The Belief Project produced a comprehensive guide on how to 'Involve stakeholders and citizens in your local energy policy' through energy forums.
   www.belief-europe.org
2. The Environment Agency of Bristol published the following paper that contains a review of a variety of public participation techniques, with their main advantages and disadvantages (p. 28).
   http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.129.8717&rep=rep1&type=pdf
3. The Employers' Organisation for local government (EO) produced a toolkit to assist local authorities and their partners to more effective collaborative working.
   http://www.lgpartnerships.com/
4. The Partner Foundation for Local Development has developed training for elected leaders. See Handbook 4, the councillor as communicator.
   http://www.fpdl.ro/publications.php?do=training_manuals&id=1
5. Interesting information about communication strategy can be found in the Energy Model project in step 9 named 'Programme implementation'.
   www.energymodel.eu

CHAPTER 5
Assessment of the current framework: Where are we?

5.1 Analysis of relevant regulations

Within a municipality, there are sometimes conflicting policies and procedures. A first step is to identify the existing municipal, regional and national policies, plans, procedures and regulations that affect energy and climate issues within the local authority.

The mapping and analysis of these existing plans and policies is a good starting point towards better policy integration. See Annex III for a list of the key European regulatory instruments relevant for local authorities.

The next step is to go through and check and compare the objectives and goals in the identified documents with the ones for a sustainable energy policy. The aim is to establish whether these objectives and goals are supporting or conflicting.

Finally, the local authority should invite all the relevant actors and stakeholders to discuss the conflicts identified. They should try to reach an agreement on the changes that are necessary to update policies and plans, and clearly establish who and when should put them into practice. The relevant actions should be planned (when possible) and the list of actions to be taken should be included in the SEAP. Changes may take time to show their beneficial effects, but should nevertheless be endorsed by the political leadership.

5.2 Baseline review and Baseline Emission Inventory

Energy consumption and CO_2 emissions at the local level are dependent on many factors: economical structure (industry/service oriented and nature of the activities), level of economic activity, population, density, characteristics of the building stock, usage and level of development of the various transport modes, citizens' attitudes, climate, etc. Some factors can be influenced in the short term (like citizens' attitudes), while others can only be influenced in the medium or long term (energy performance of the building stock). It is useful to understand the influence of these parameters, how they vary in time, and identify upon which the local authority can act (in the short, medium and long term).

This is the purpose of baseline review: establish a clear picture of 'where we are', a description of the city's current situation in terms of energy and climate change.

A baseline review is the starting point for the SEAP process from which it is possible to move to relevant objective-setting, elaboration of adequate Action Plan and monitoring. The baseline review needs to be based on existing data. It should map relevant legislations, existing policies, plans, instruments and all departments/ stakeholders involved.

Completing a baseline review requires adequate resources, in order to allow the data sets to be collated and reviewed. This assessment permits elaborating a SEAP that is suited to the emerging issues and specific needs of the local authority's current situation.

In Annex II, you will find a list of suggested aspects to be covered in the baseline review.

The aspects to be covered can be either quantitative (evolution of energy consumption…) or qualitative (energy management, implementation of measures, awareness…). The baseline review allows to prioritise actions and then to monitor the effects based on relevant indicators. The most demanding element is to build a complete CO_2 emission inventory, based on actual energy consumption data (refer to Part II of this guidebook, which provides guidance on how to collect the energy data and how to elaborate the CO_2 emission inventory).

DETAILED STEPS FOR CONDUCTING THE BASELINE REVIEW:

1. **Select the review team – preferably the inter-sectoral working group.**
   At this stage you should decide what degree of stakeholder's involvement you wish for this process. As stakeholders generally posses a lot of valuable information, their involvement is highly recommended (see chapter 3).
2. **Assign tasks to team members.**
   Consider the competencies, as well as the availability of each member of the group, in order to assign them tasks that they will be able to perform.
3. **Establish review schedule.**
   Indicate realistic start and end date of all data collection activities.

4. **Identify the most important indicators to be** included in the assessment.
   The following elements should be covered:
   - What is the energy consumption and CO_2 emissions of the different sectors and actors present in the territory of the local authority and what are the trends? (See Part II).
   - Who produces energy and how much? Which are the most important sources of energy? (See Part II).
   - What are the drivers that influence energy consumption?
   - What are the impacts associated with energy consumption in the city (air pollution, traffic congestion…)?
   - What efforts have already been made in terms of energy management and what results have they produced? Which barriers need to be removed?
   - What is the degree of awareness of officials, citizens and other stakeholders in terms of energy conservation and climate protection?

   In annex, we provide a table with more detailed specifications of the aspects that could be covered in the assessment.

5. **Collect the baseline data.**
   It requires the collection and processing of quantitative data, the establishment of indicators, and the gathering of qualitative information using document review and interviews/workshops with stakeholders. The selection of data sets needs to be based on criteria that are agreed on with stakeholders, who are then actively involved in contributing data. Part II of this guidebook provides guidance for the collection of data related to energy consumption.

6. **Compile the CO_2 baseline emission inventory.**
   Based on energy data, the CO_2 baseline emission inventory can be compiled (see Part II of this guidebook).

7. **Analyse the data.**
   It is not enough just to collect data: data needs to be analysed and interpreted in order to inform policy. For example, if the baseline review shows that energy consumption is increasing in a specific sector, try to understand why it is so: population increase, increased activity, increased usage of some electrical devices, etc. …

8. **Write the self-assessment report –**
   be honest and truthful, as a report which does not reflect reality serves no purpose.
   The baseline review can be carried out internally within the local authority as a self-assessment process, but combining the self-assessment with an external peer review can add additional value to the process. Peer review offers an objective third-party review of achievements and future prospects. Peer reviews can be carried out by external experts who work in other cities or organisations in similar fields of expertise. It is a cost-effective method and often a more politically acceptable alternative to consultants.

Based on the data collected and on the different sets of hypothesis, it may be relevant to establish scenarios: how would energy consumption and CO_2 emissions evolve under current policies, what would be the impact of the projected actions, etc?

5.3 SWOT analysis

A SWOT analysis is a useful strategic planning tool that can be applied in the SEAP process. Based on the findings of the baseline review, it allows one to determine the Strengths and Weaknesses of the local authority in terms of energy and climate management, as well as the Opportunities and Threats that could affect the SEAP. This analysis can help to define priorities when devising and selecting SEAP actions and measures.

Additional resources

1. The Model project provides some guidance on how to build different scenarios:
   http://www.energymodel.eu/IMG/pdf/IL_4_-_Baseline.pdf
2. The Managing Urban Europe 25 project gives detailed instructions on how to prepare a baseline review (based on sustainability management).
   http://www.localmanagement.eu/index.php/mue25:mue_baseline
3. The charity village website provides additional guidance on SWOT Analysis.
   http://www.charityvillage.com/cv/research/rstrat19.html
4. The businessballs website provides free resources on SWOT analysis, as well as examples.
   http://www.businessballs.com/swotanalysisfreetemplate.htm

CHAPTER 6
Establishment of a long-term vision with clear objectives

6.1 The vision: towards a sustainable energy future

A further step to undertake to make your municipality in line with the Covenant of Mayor's energy-efficiency objectives is to establish a vision. The vision for a sustainable energy future is the guiding principle of the local authority's SEAP work. It points out the direction in which the local authority wants to head. A comparison between the vision and the local authority's current situation is the basis for identifying what action and development is needed to reach the desired objectives. The SEAP work is a systematic approach to gradually get closer to the vision.

The vision serves as the uniting component that all stakeholders can refer to; meaning everyone from leading politicians to citizens and interest groups. It can also be used for marketing the local authority to the rest of the world.

The vision needs to be compatible with the Covenant of Mayors' commitments, i.e. it should imply that the 20 % CO_2 emission reduction in the 2020 target will be reached (at the minimum). But it could also be more ambitious than that. Some cities already plan to become carbon neutral in the long run.

The vision should be realistic but still provide something new, add real value and break some old boundaries that do not have real justification any more. It should describe the desired future of the city and be expressed in visual terms to make it more understandable for citizens and stakeholders.

It is warmly recommended to involve stakeholders in the process to get more new and bold ideas and also to use stakeholder participation as the starting point of behavioural change in the city. Besides, stakeholders and citizens may provide a strong support to the process, as they sometimes want stronger action than what other levels of government would be prepared to support.

EXAMPLES OF VISIONS OF SOME LOCAL AUTHORITIES

Växjö (Sweden):
'In Växjö, we have the vision that we will live and act so as to contribute to sustainable development where our consumption and production are resource-effective and pollution free.' And *'The vision is that Växjö shall become a city where it is easy and profitable to live a good life without fossil fuels.'*

Lausanne (Switzerland):
'Our 2050 vision is a reduction by 50 % of the CO_2 emissions on the city's territory.'

6.2 Setting objectives and targets

Once the vision is well established, it is necessary to translate it into more specific objectives and targets, for the different sectors in which the local authority intends to take action. These objectives and targets should be based on the indicators selected in the baseline review (see chapter 5.2).

Such targets and objectives should follow the principles of the SMART acronym: Specific, Measurable, Achievable, Realistic, and Time-bound. The concept of SMART objectives became popular in the 1980s as an efficient management concept.

To set SMART targets, ask yourself the following questions:

1. **Specific** (well-defined, focused, detailed and concrete) – ask yourself: What are we trying to do? Why is this important? Who is going to do what? When do we need it done? How are we going to do it?
2. **Measurable** (kWh, time, money, %, etc.) – ask yourself: How will we know when this objective has been achieved? How can we make the relevant measurements?
3. **Achievable** (feasible, actionable) – ask yourself: Is this possible? Can we get it done within the timeframe? Do we understand the constraints and risk factors? Has this been done (successfully) before?
4. **Realistic** (in the context of the resources that can be made available) – ask yourself: Do we currently have the resources required to achieve this objective? If not, can we secure extra resources? Do we need to reprioritise the allocation of time, budget and human resources to make this happen?
5. **Time-Bound** (defined deadline or schedule) – ask yourself: When will this objective be accomplished? Is the deadline unambiguous? Is the deadline achievable and realistic?

6.3 Examples of SMART objectives ([15])

TYPES OF INSTRUMENT	EXAMPLES OF SMART TARGETS
Energy performance standard	S: Focus on specific product or product group M: Performance characteristics aimed for/set baseline A: Performance standard links to best available product on the market and is regularly updated R: Best available product is accepted by the target group T: Set clear target period
Subsidy scheme	S: Focus on specific target group and on specific technologies M: Quantified energy savings target/set baseline A: Minimize freeriders R: Link the savings target to the available budget T: Link the energy savings target to a target period
(Voluntary) Energy audit	S: Focus on specific target group M: Quantify the target audit volume (m^2, number of companies, % of energy use, etc.)/set baseline A: Encourage to implement recommended measures, e.g. by offering financial incentives R: Ensure that sufficient qualified auditors have been assigned and financial incentives are in place to carry out audits T: Link the quantified target to a target period

In practice, a potential SMART target could be: '15 % of the dwellings will be audited between 1/1/2010 and 31/12/2012'. Then, it is necessary to check every condition of being SMART. For example, the answer could be:

*'It is **Specific** because our action (energy audits) and target group (dwellings) is well defined. It is **Measurable** because it is a quantified target (15 %) and because we have a system in place to know the number of audits actually carried out. It is **Achievable** because there is a financial incentive scheme that allows people to be reimbursed and because we will organise communication campaigns about audits. It is **Realistic** because we have trained 25 auditors that are now well-qualified, and we have verified that this number is sufficient. It is **Time-bound** because the time-frame is well defined (between 1/1/2010 and 31/12/2012).'*

SOME TIPS

- Avoid putting 'raising awareness' as an objective. It is too big, too vague and very difficult to measure.
- Add the following requirements to the objectives:
  - understandable – so that everyone knows what they are trying to achieve;
  - challenging – so everyone has something to strive for.
- Define specific targets for 2020 for the different sectors considered and define intermediate targets (at least every 4 years, for instance).

Additional resources

1. The 'practice of leadership' website provides additional guidance on setting SMART Objectives: **http://www.thepracticeofleadership.net/2006/03/11/setting-smart-objectives/** **http://www.thepracticeofleadership.net/2006/10/15/10-steps-to-setting-smart-objectives/**
2. **The European Sustainable Development Network publishes** a study on (SMART) Objectives and Indicators of Sustainable Development in Europe: **www.sd-network.eu/?k=quarterly%20reports&report_id=7**

([15]) ***http://www.aid-ee.org/documents/SummaryreportFinal.PDF*** *– April 2007.*

CHAPTER 7
SEAP elaboration

The core part of the SEAP relates to the policies and measures that will allow to reach the objectives that have been previously set (see chapter 6).

SEAP elaboration is only one step in the overall process and it should not be considered as an objective in itself, but rather as a tool that allows to:

- outline how the city will look like in the future, in terms of energy, climate policy and mobility (the vision);
- communicate and share the plan with the stakeholders;
- translate this vision into practical actions assigning deadlines and a budget for each of them;
- serve as a reference during the implementation and monitoring process.

It is desirable to create a broad political consensus for the SEAP in order to ensure its long-term support and stability, regardless of changes in the political leadership. Discussions will be needed at the highest level to agree on the way in which stakeholders and political groups will be involved in the SEAP elaboration.

Also remind that the work does not finish after drafting the SEAP and its formal approval. On the contrary, this moment should be the start of the concrete work of putting the planned actions into reality. A clear and well-structured SEAP is essential for this (i.e. all actions should carefully be designed and described properly, with timing, budget, sources of financing and responsibilities, etc.).

Some chapters of this guidebook (chapter 8 dealing with policies, as well as Part III of the guidebook) will provide you with useful information in order to select and devise adequate policies and measures for your SEAP. Adequate policies and measures are dependent on the specific context of each local authority. Therefore, defining measures that are suited to each context is also highly dependent on the quality of the assessment of the current framework (see chapter 5).

Here is a list of recommended steps for drafting a successful SEAP:

Make a prospective of best practices

In addition to the resources on policies and measures provided in this guidebook (see chapter 8), it may be useful to identify what best practices (successful examples) have delivered effective results in similar contexts in reaching similar targets and objectives than those set by the municipality, in order to define the most appropriate actions and measures. In this sense, joining a network of local authorities can be very helpful.

Set priorities and select key actions and measures

Different kinds of actions and measures may contribute to the achievement of the objectives. Undertaking the entire list of possible actions will often surpass the current capabilities of the local authority, in terms of costs, project management capacities, etc. In addition, some of them may be mutually exclusive. This is why an adequate selection of actions in a given time horizon is necessary. At this stage a preliminary analysis of the possible actions is necessary: what are the costs and benefits of each of them (even in qualitative terms).

To facilitate the selection of measures, the local authority may rank the possible measures by importance in a table summarising the main characteristics of each action: duration, level of required resources, expected results, associated risks, etc. The actions may be broken down in short-term actions (3-5 years) and long-term actions (towards 2020).

Specific methods for the selection of priorities are available (16). In simple terms, you should:

- define which criteria you want to consider for the selection of measures (investment required, energy savings, employment benefits, improved air quality, relevance to the overall objectives of the local authority, political and social acceptability…);
- decide which weight you give to each criterion;
- evaluate each criterion, measure by measure, in order to obtain a 'score' for each measure;
- If necessary, repeat the exercise in the context of various scenarios in order to identify the measures whose success is not scenario-dependent (see chapter 5).

Such an evaluation is a technical exercise, but it has definitely a political dimension, especially when selecting the criteria and their respective weighting. Therefore, it should be carried out in a careful manner, and be based on relevant expert and stakeholders' opinion. It may be useful to refer to various scenarios (see chapter 5).

Carry out a risk analysis (17)

The selection of actions and measures should also be based on the careful estimation of risks associated with their implementation (especially when significant investments are planned): how likely is it that an action fails or does not bring the expected results? What will be the impact on the objectives? And what are the possible remedies?

(16) *See for example* ***http://www.energymodel.eu/IMG/pdf/IL_6_-_Priorities.pdf***

(17) *Further information on risks and project management can be found in scientific literature. This information on risk management is based on the paper 'Role of public-private partnerships to manage risks in the public sector project in Hong Kong' INTERNATIONAL JOURNAL OF PROJECT MANAGEMENT 24 (2006) 587-594.*

Risks can be of different nature:

- Project-related risks: cost and time overruns, poor contract management, contractual disputes, delays in tendering and selection procedures, poor communication between project parties…
- Government-related risks: inadequate approved project budgets, delays in obtaining permissions, changes in Government regulations and laws, lack of project controls, administrative interference…
- Technical risks: inadequate design or technical specifications, technical failures, poorer than expected performance, higher than expected operation costs…
- Contractor-related risks: inadequate estimates, financial difficulties, delays, lack of experience, poor management, difficult in controlling nominated subcontractors, poor communication with other project parties, etc.
- Market-related risks: increase in wages, shortages of technical personnel, materials inflation, shortage of materials or equipment, and variations in the price of the various energy carriers…

Risks may be assessed using conventional quality management techniques. Finally, remaining risks have to be evaluated and either accepted or rejected.

Specify timing, clear responsibilities, budget and financing sources of each action

Once the actions have been selected, it is necessary to plan them carefully so that they can become a reality. For each action, specify:

- The timing (begin date – end date).
- The person/department responsible for implementation.
- The modality of financing. As municipality resources are scarce, there will always be competition for available human and financial resources. Therefore, efforts should be continuously made to find alternative sources of human and financial resources (see chapter 9).
- The modality of monitoring: identify the kind of data that need to be collected in order to monitor the progress and results of each action. Specify how and by whom the data will be collected, and who will compile it. See chapter 11 for a list of possible indicators.

To facilitate implementation, complex actions could be broken down into simple steps, each of them having its own timing, budget, person responsible, etc.

Draft the Action Plan

At this stage, all the information should be available to complete the SEAP. A suggested table of content is presented in chapter 1.

Approve the Action Plan and its associated budget

Formal approval of the SEAP by the municipal council is a mandatory requirement of the Covenant. In addition, the local authority should allocate the necessary resources in the annual budget and whenever possible make commitments for the forward (3-5 year) planning budget.

Perform regular SEAP reviews

Continuous monitoring is needed to follow SEAP implementation and progresses towards the defined targets in terms of energy/CO_2 savings, and eventually to make corrections. Regular monitoring followed by adequate adaptations of the plan allows initiating a continuous improvement cycle. This is the 'loop' principle of the project management cycle: Plan, Do, Check, Act. It is extremely important that progress is reported to the political leadership. SEAP revision could for example occur every second year, after the implementation report has been submitted (mandatory as per the Covenant of Mayors' commitments).

Additional resources

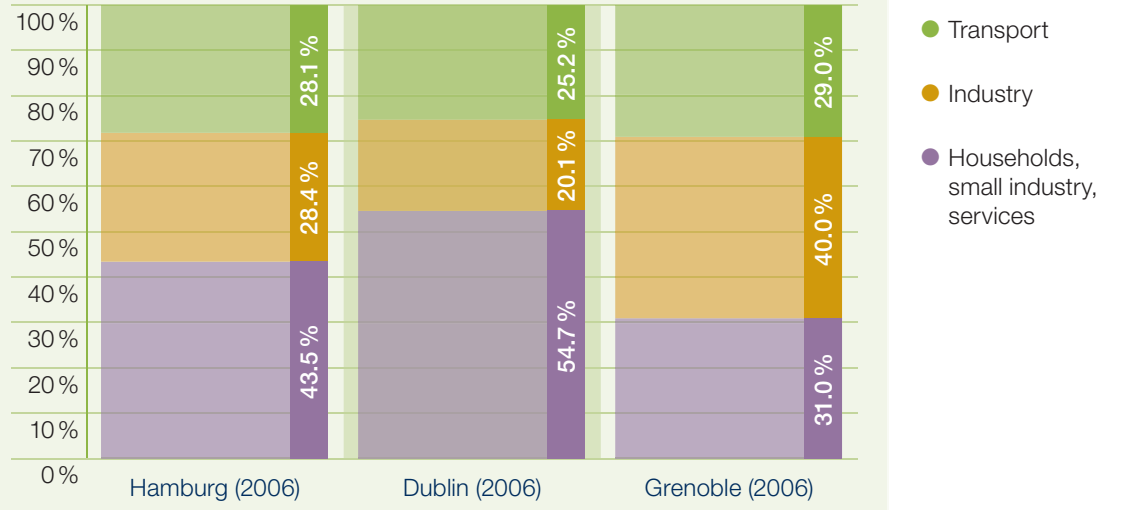
1. The JRC published a review of existing methodologies and tools for the development and implementation of SEAPs: **http://re.jrc.ec.europa.eu/energyefficiency/pdf/CoM/Methodologies_and_tools_for_the_development_of_SEAP.pdf**
2. Climate Alliance developed a 'Compendium of Measures' helping to develop a climate change strategy at local level. Local authorities have the possibility to choose a set of measures in those fields where they are more interested and decide the level of ambition (that will help to define the indicators of achievement) for each field. **http://www.climate-compass.net/fileadmin/cc/dokumente/Compendium/CC_compendium_of_measures_en.pdf**
3. There are also case studies based on the different areas of action relevant for the Action Plan: **http://www.climate-compass.net/_cases.html**

CHAPTER 8
Policies and measures applicable to your SEAP

The Covenant of Mayors concerns action at local level within the competence of the local authority. This chapter provides suggestions and examples of policies and measures that can be adopted by the local authority in order to reach the SEAP objectives. It concentrates on 'policy' actions that will generally deliver CO_2/energy saving over the longer term, e.g. via subsidies, regulations, information campaigns.

The establishment of the baseline review (chapter 5), and in particular the knowledge of the share of the various economic sectors in the total CO_2 emissions, will help the municipality to define priorities and select relevant measures in order to cut the CO_2 emissions. As this share of emissions per sector is specific for each city, three different examples are presented below.

CO_2 EMISSIONS PERCENTAGE PER SECTOR IN DUBLIN, GRENOBLE AND HAMBURG



Source: information extracted from values of the climate Action Plan of Hamburg, Dublin and Grenoble.

Policies and measures aiming at reducing the CO_2 emissions at the local level can be categorised in different ways, for example:

- the sectors addressed (residential, industry, transport, etc.);
- whether they are addressed to the local administration itself or not;
- the type of instrument used (financial support, regulation, communication and information, demonstration, etc.);
- the type of impact on the energy consumption and production patterns: energy efficiency of equipment, buildings, cars, etc., more rational behaviour (e.g. turning off lights, increased usage of public transport), cleaner energy (e.g. use of renewable energies, biofuels).

This chapter provides information on policies related to the key target sectors of the Covenant: buildings and transport, usage of renewable energies and CHP, and covers the key fields of action: land-use planning, public procurement, working with the citizens, and information and communication technologies (ICT).

Additional resources

1. A study carried out for the European Commission (DG TREN) and coordinated by the Fraunhofer-Institute provides information on energy-saving potentials in various sectors: **http://ec.europa.eu/energy/efficiency/studies/doc/2009_03_15_esd_efficiency_potentials_final_report.pdf**
2. The AID-EE project provides guidelines for the monitoring, evaluation and design of energy-efficiency policies: **http://www.aid-ee.org/documents/000Guidelinesforthemonitoringevaluationanddesign.PDF**
3. The AID-EE project also provides information on the overall impact assessment of current energy-efficiency policies and potential 'good practice' policies': **http://www.aid-ee.org/documents/WP5_AID-EE_Final_000.pdf**

8.1 Buildings sector

Buildings are responsible for 40 % of total EU energy consumption and are often the largest energy consumer and CO_2 emitter in urban areas. Therefore, it is crucial to devise efficient polices to reduce energy consumption and CO_2 emissions in this sector.

The policies and measures allowing to promote energy efficiency and renewable energies in buildings depend on the type of buildings, their usage, age, location, ownership (private/public…), and if the building is in a project-phase or is an existing one. For example, historic buildings may be protected by law so that the number of options to reduce energy consumption is quite restricted.

The main energy usages in buildings are: maintaining an adequate indoor climate (heating, cooling, ventilation and humidity control), lighting, production of sanitary hot water, cooking, electrical appliances, elevators.

Key factors that affect energy consumption in buildings are the following:

- performance of the building envelope (thermal insulation, building tightness, surface and orientation of the glazed surfaces…);
- behaviour (how we use the buildings and its equipment in our day-to-day life);
- efficiency of the technical installations;
- quality of the regulation and maintenance of the technical installations (are the technical installations managed and maintained in such a way as to maximise their efficiency and minimise their overall usage?);
- ability to benefit from heat gains in the winter and limit them in the summer (appropriate summer comfort strategy);
- ability to benefit from natural lighting;
- efficiency of electrical appliances and lighting.

Recourse to renewable energy sources will not result in a reduction of energy consumption, but will ensure that the energy used in the building has a lower impact on the environment.

In this section, we first provide policy suggestions applicable at the local level to the buildings sector as a whole. In part III of the guidelines, we provide specific considerations related to different situations: new buildings, existing buildings, public buildings, historical buildings… The technical measures that can be implemented to increase the efficiency of buildings are also described in part III of this guidebook.

The Energy Performance of Buildings Directive (2002/91/EC) is a key regulatory instrument which is meant to boost the energy performance of the building sector. We suggest the local authorities to get informed about the specific rules that apply in their country, and to take maximum advantage of this regulation to improve the performance of their building stock (for example local authorities could make use of the standards developed at national/regional level to impose more stringent energy performance requirements than those applicable at national/regional level – this will be developed below). See Annex III.

Here are some suggestions of policies that can be implemented at the local level in order to boost energy efficiency and renewables in buildings:

Regulations for new/renovated buildings

- Adopt stricter global energy performance standards than those applicable at national/regional level, especially if such standards are not particularly demanding. Depending on the national/regional regulatory context, local authorities may be able to adopt such standard in their urban planning rules and regulations. Global energy performance standards leave many options open to building designers to choose how they will reach the objectives. In principle, architects and building designers should be familiar with those norms, as they apply to the entire national/regional territory. Generally fewer options exist to reduce energy consumption with refurbishments than for new buildings; therefore the requirements are generally less stringent. Eventually they may be adjusted according to the building's characteristics.
- Adopt specific standards for building components (thermal transmittance of the envelope, of windows, efficiency of the heating system, etc.). This option has the advantage to be simple to understand, and guarantees the minimal performance of the components, even if the overall performance cannot be achieved.
- Impose the inclusion of some components that will help to improve the energy efficiency (shading devices, presence of meters that record the energy consumption, heat recovery devices for mechanical ventilation…). This can be done as a general rule that would apply to all new buildings, or could be imposed on a case-by-case basis, according to the building characteristics (e.g. impose shading devices to buildings having a significant glazing surface oriented to the south).
- Impose a certain quantity of renewable energy production/usage, in particular in public buildings.
- Adopt energy performance standards for renovation works which are not considered as 'major renovation' by national/regional law, and for which no energy performance standards apply.

Enforcement of regulations

- Ensure that the energy performance standards are respected in practice and apply penalties if necessary. It is recommended to adopt both 'on paper' and 'on site' verifications. The presence of a representative of the authority at some point during construction/ renovation works will clearly show that the authority is taking the regulations seriously and will help to improve the practices of the construction sector at the local level.

Financial incentives and loans

- The local authority could complement the financial support mechanisms existing at national or regional level, with extra financial incentives for energy efficiency or renewable energy sources. Such a scheme could focus on the global energy performance of buildings (e.g. the incentive could be proportional to the difference between a minimal threshold of energy performance, calculated according to the existing national/regional standards, and the level of performance actually achieved), or could be used to support specific techniques that the local authority would consider of particular relevance for new buildings, considering its own context and objectives (thermal insulation, RES, …). The latter option is particularly relevant for renovated buildings, for which the precise calculation of the overall energy performance is generally less easy than for new buildings. Ideally, the financial incentive would cover (part of) the difference between the cost of 'standard construction work' and a construction/renovation that is considered as energy efficient.
- In addition, the local authority could provide financial support for the purchase of energy efficient equipment that allow to reduce energy consumption of buildings (efficient lamp bulbs, efficient appliances, …).
- Although financial incentives do reduce the cost of investment related to energy-efficiency, investors (either citizens, private companies, etc) still have to face up-front payments. To facilitate the access to capital, the local authority may liaise with local banks and financial institutions, so that low-interest loans are available for energy efficiency or RES.

Notes:
Even if the budgets that the local authority can devote to such subsidies is not immense, they could still make a great difference in terms of citizens' motivation: with proper communication, such subsidies could be seen as a clear sign that the local authority is willing to achieve success in the field of energy and climate policy, and that it is willing to support its citizens in this direction.

Note that the European Regulations on State Aid fix a framework for the financial support Member States are allowed to provide to commercial activities.

Information and training

- Make the relevant stakeholders (architects, building developers, construction companies, citizens…) aware of the new energy performance requirements for buildings, and provide them some motivating arguments (the savings on the energy bills can be highlighted, as well as the benefits in terms of comfort, environmental protection, etc. …).
- Inform the general public and key stakeholders about the importance and benefits of behaviour favouring the reduction of energy consumption and CO_2 emissions.
- Involve local companies: they may have an economic interest in the energy efficiency and renewable energy business.
- Inform the stakeholders about the resources available: where can the information be found, what are priority measures, who can provide proper advice, how much does it cost, how can households do proper work by themselves, what are the tools available, who are the local competent architects and entrepreneurs, where can the necessary materials be purchased locally, what are the available subsidies, …? This could be done via info days, brochures, information portal, information centre, helpdesk etc. …
- Organise specific info and training sessions for the architects, workers and construction companies: they must become familiar with the new design and constructing practices and regulations. Specific training could be organised to cover basic issues (basic building thermal physics, how to install properly thick insulation layers) or more specific issues that are often neglected (thermal bridges, building air tightness, natural cooling techniques, etc.).
- Make sure the tenants, owners and managers of new and renovated buildings are informed about the building's features: what makes this building energy efficient and how to manage and operate the equipment and facilities offered in order to obtain a good comfort and minimise the energy consumption. All the technical information needs to be passed to technicians and maintenance companies.

Promote successes

- Encourage people to build efficient buildings by offering them recognition: buildings significantly above the legal standards of energy performance could be made visible by a label, open day visits, an exhibition in the town hall, an official ceremony, signposting on the local authority's website, etc. The energy performance certificate, which is a requirement of the Energy Performance of Buildings Directive (see above), could be used for that purpose (e.g. the local authority could organise a contest for the first 'Label A' buildings built in the municipality). Other standards can be used as well ('passive house' standard, etc.).

Demonstration buildings

Demonstrate that it is feasible to build energy-efficient buildings or to make renovation with high-energy performance standards. Show how it can be done. Some high-performance buildings could be open to the public and stakeholders for this purpose. It does not necessarily need to be a high technology building – the most efficient ones are sometimes the simplest ones: the problem with energy efficiency is that it is not always quite visible (think about thick insulation for example). However, listening to the owner and the occupants talking about their experience, their reduced energy bills, their improved comfort, etc should already be worthwhile. Visits during construction stage could be interesting for training and educational purposes for construction companies and architects.

Promote energy audits

Energy audits are an important component of energy-efficiency policy, as they enable identifying, for each audited building, the best measures allowing to reduce energy consumption. Therefore, the local authority could promote such audits via proper information, ensuring the availability of competent auditors (training…), financial support to audits… (see part III of the guidebook for more information on energy audits).

Urban planning

As explained in the dedicated section, urban planning is a key instrument to boost and plan refurbishments. In addition to setting energy performance standards, as mentioned above under 'regulation', urban regulations should be devised in such a way not to deter energy efficiency and RES projects. For instance, long and complex authorisation procedures to install solar panels on roofs of existing buildings will be a clear obstacle to RES promotion and should be avoided.

Increase the rate of refurbishment

By accelerating the rate of buildings undergoing energy efficient refurbishments, the impact of the above measures on the energy and CO_2 balance will increase. Some of the above measures, and in particular urban planning, financial incentives, loans or information campaigns about the benefits of energy efficient renovations are likely to have such an effect.

Energy taxes

Higher energy prices generally increase awareness and motivation towards energy savings. If the local authority has the legal power to do so, it may decide to levy taxes on energy. However, the social consequences of such a measure should be evaluated and debated thoroughly before such a decision is made. In addition, an adequate communication plan should be devised to ensure citizens understand and adhere to such a policy. The question related to the usage of tax revenues should also be dealt with in a very transparent manner (e.g. financing an energy-efficiency support fund, financial compensation economically for vulnerable citizen groups, etc.).

Coordinate policies with other levels of authority

A number of policies, instruments, tools in the field of energy efficiency of buildings and RES exist at regional, national and European level. We recommend that the local authority has a good view of these, in order to avoid duplication, and to take the maximum advantage of what already exists.

Some recommendations for public buildings

Management of public buildings: a local authority has often control over a large number of buildings. Therefore a systematic approach is recommended in order to ensure a coherent and efficient energy policy covering the entire building stock over which the local authority exercises control. Such an approach could be:

- Identify all buildings and facilities owned/managed/controlled by the local authority.
- Collect energy data related to those buildings and set up a data management system (see section 4.1.2 a of part II of these guidelines).
- Classify the buildings according to their energy consumption, both in absolute values and per square metre or other relevant parameters like: number of pupils for a school, number of workers, number of users for libraries and swimming pools, etc.
- Identify buildings which consume the most energy and select them for priority action.
- Prepare an Action Plan (part of the SEAP) in order to progressively reduce the energy consumption of the building stock.
- Nominate someone in charge of the implementation of the plan!
- Verify that the commitments and obligations of the contractors, in terms of energy efficiency, are met in practice and apply penalties if it is not the case. On-site verifications during construction are advisable (e.g. thick insulation which is not placed adequately will not be very efficient).
- Recycle the savings: if the local authority's financial rules allow to do so, savings obtained through simple and low-cost measures could be used to finance larger energy-efficiency investments (e.g. revolving funds, for further details see chapter 9).

POLICY INSTRUMENTS AT DISPOSAL OF THE LOCAL AUTHORITY	PRIVATE BUILDINGS			PUBLIC BUILDINGS		
	New	Renovated	Existing	New	Renovated	Existing
Energy performance regulations	X	X	–	+	+	–
Financial incentives and loans	X	X	+	+	+	–
Information and training	X	X	X	X	X	X
Promote successes	X	X	+	X	X	+
Demonstration buildings	X	X	–	X	X	–
Promote energy audits	–	X	X	–	X	X
Urban planning and regulations	X	+	–	X	+	–
Increase the rate of refurbishment	–	X	–	–	X	–
Energy taxes	+	+	+	+	+	+
Coordinate policies with other levels of authority	X	X	X	X	X	X

X = most relevant + = somehow relevant – = low relevance

Table: Relevance of the policies exposed in this guidebook related to different buildings situations.

8.2 Transport [18]

The transport sector represents approximately 30 % of the final energy consumption in the European Union. Cars, trucks and light vehicles are responsible for 80 % of the final energy consumed in the transport sector. The European Commission and the European Parliament have recently adopted the Communication COM (2009) 490 [19] 'Action Plan on Urban Mobility'. The Action Plan proposes twenty measures to encourage and help local, regional and national authorities in achieving their goals for sustainable urban mobility.

Before the local authority proposes specific policies and measures concerning transport, an in-depth analysis of the local current situation is highly recommended. The actual means of transport and the possible connections or synergies with different means of transport must be well-matched with the geographic and demographic features of the city and the possibilities to combine different types of transport.

Effective, Sustainable Urban Transport Planning (SUTP) [20] requires long-term vision to plan financial requirements for infrastructure and vehicles, to design incentive schemes to promote high quality public transport, safe cycling and walking and to coordinate with land-use planning at the appropriate administrative levels. Transport planning should take into account safety and security, access to goods and services, air pollution, noise, greenhouse gas emissions and energy consumption, land use, cover passenger and freight transportation and all modes of transport. Solutions need to be tailor-made, based on wide consultation of the public and other stakeholders, and targets must reflect the local situation. This chapter aims to offer different possibilities to municipalities to build their own SUTP.

1. Reducing the need for transport [21]

Local authorities have the possibility to reduce the needs for transport. Here are some examples of policies to be implemented locally.

(18) *Further information on transport sector in Transport Research Knowledge Centre (TRKC)* ***www.transport-research.info***
Project funded by the European Commission's Directorate General for Energy and Transport under the Sixth Framework Programme for Research and Technological Development (FP6).
This chapter is based on the document 'Expert Working Group on Sustainable Urban Transport Plans' *provided by the International Association of Public Transport UITP.* ***www.uitp.orgv***

(19) *Available on* ***http://ec.europa.eu/transport/urban/urban_mobility/action_plan_en.htm****. All European Union regulations may be found on* ***http://eur-lex.europa.eu/***

(20) *Further information about SUTPs on* ***http://ec.europa.eu/environment/urban/urban_transport.htm****. In addition, the webpage* ***http://ec.europa.eu/environment/urban/pdf/transport/2007_sutp_annex.pdf*** *provides an important amount of information concerning local transport policies and good practices in several European cities.*

(21) *This paragraph has been developed using information from the Moving Sustainably Project that contains an interesting methodology aimed at implementing Sustainable Urban Transport plans. Further information is available at* ***www.movingsustainably.net*** *in which it is possible to find a methodology to develop SUTPs.*

- Providing door-to-door access choices across the urban agglomeration. This objective may be reached through an appropriate combination of less flexible ways of transport for long and medium distances and other more flexible ways, such as bike hiring for short distances.
- Making efficient use of space, promoting a 'compact city' and targeting the urban development to public transport, walking and cycling.
- Strengthening the use of information and communication technologies (ICT). The local authorities have the opportunity to use ITC technologies to implement online administrative procedures and avoid citizens travelling to fulfil their duties with public administrations.
- Protecting existing short-routes in the network in order to diminish the energy consumption of those less efficient or more necessary means of transport (i.e. massive public transport)

2. Increasing the attractiveness of 'alternative' transport modes

Increasing the modal share for walking, cycling and public transport can be achieved through a wide variety of plans, policies and programmes.

As a general principle linked to transport policies, managing the overall offer and demand of transport is essential to optimise the use of infrastructure and transport systems. This allows making compatible the different ways of transport such as bus, train, tramway and underground to take advantage of each one and avoid unnecessary overlapping.

Public transport

Increasing the modal share for public transport requires a dense network of routes that meets the mobility needs of people. Before implementing any transport policy, the local authority should determine the reasons/factors of why citizens/businesses are NOT using public transport. Therefore, it is essential to identify barriers for public transport use. Some examples ([22]) of such barriers for buses are:

- inconvenient stops and inadequate shelters;
- difficulty in boarding buses;
- infrequent, indirect and unreliable services;
- lack of information on services and fares;
- high cost of fares;
- long journey times;
- lack of practicability of connections between different modes of transport;
- fear of crime, particularly at night.

To increase the share of public transport among the citizens, the local authority could implement the following measures:

- Develop a set of indicators measuring the access to public transport of citizens. Perform a comprehensive analysis of the current situation and adopt corrective actions to improve these indicators. The network should be attractive and accessible for all communities of interest and ensure that stops are sited within walking distance from key residential, commercial and tourist centres.
- A marketing strategy and service information availability should be integrated across public transport modes within 'travel to work' urban areas. The use of marketing enables a permanent improvement in all customer relations activities like sales, advertising, branding, network design, product (Public Transport) specifications, complaint management and customer service.
- Promote collective transport programmes for schools and businesses. This requires a forum with companies, unions and consumer associations in order to identify their needs, share the costs of the service and maximize the number of citizens with access to the public transport.
- Provide an integrated public transport information service through a call centre, Information Centres, 24 hour information points and Internet.
- Services need to be reliable, frequent, cost and time-competitive, safe to use and perceived by the public as such. Therefore an important communication effort is necessary to inform users about the advantages of using public transport with respect to other means of transport.
- Information about services needs to be 'real-time', widely available and include predicted arrival times (for arriving passengers, it is also possible to give information about connections). For example, displays may give passengers a countdown in minutes until the arrival of the next bus, as well as showing the stop name and current time.
- 'Public transport only' and priority routes will be essential policies. This will reduce travel time which is one of the most considered factors by users when choosing among the different means of transport. Spatial planning should deliver the required loading factors to allow public transport to compete with car transport.
- Work in partnership with the district councils and others to ensure a high standard of provision and maintenance of the public transport infrastructure, including bus shelters and improved facilities at bus and rail stations.
- Create a suggestion box to consider the ideas of users and non-users in order to improve your service. Consider the possibility to create 'transport charter' according to the specific needs of a group of users.
- Create a Free Tourist Shuttle System with a fixed route and stops at a variety of popular tourist destinations. This would eliminate vehicle trips and parking spaces at popular destinations and provide an easy transportation alternative for tourists who are uncomfortable with a complex transit schedule.

It is important to keep in mind that choices are occasionally based on comparisons among public transport and car. For instance, some actions aimed at increasing the share of public transport are not only linked to the measures undertaken in this sector, but also in other areas such as reducing the use of cars (for example pricing public parking policy). The monitoring results of public transport may be an effective indicator to know the effectiveness of some policies mentioned in this chapter.

([22]) *These reasons exposed as an example stem from the document 'Lancashire Local Transport Plan 2008-2010' that can be downloaded from* ***www.lancashire.gov.uk/environment/***

Cycling [23]

Increasing the modal share for cycling also requires a dense network of well-maintained routes that are both safe to use and perceived by the public as such. Spatial and transport planning should treat cycling as an equal mode of transport, along with cars and public transport. This means reserving the space that is necessary for the 'cycling infrastructure', direct connections and ensuring continuity with attractive and secure cycle parking facilities at transport hubs (train and bus station) and workplaces. Infrastructure design should ensure that there is a hierarchy of routes that are safe, attractive, well-lit, signposted, maintained all year round and integrated with green space, roads and the buildings of urban areas.

The international transport forum [24] (OECD) has identified seven key policy areas [25] in which authorities can act to promote cycling:

- Image of cycling: it is not only a leisure/sport activity but also a means of transport.
- Infrastructure: an integrated network of cycling paths connecting origins and destinations, and separate from motorised traffic, is essential to promote cycling.
- Route guidance and Information: information such as number or colour of the cycling ways and distances in order to make them easy to follow for cyclists.
- Safety: approve standards for safe driving and avoid the mixture of bicycles and other heavy means of transport.
- Links with public transport: develop parking facilities at railway stations or tramway/bus stops. Rent bicycles at public transport and railway stations.
- Financial arrangements for cycling infrastructure should be considered.
- Bicycle theft: prevent theft imposing electronic identification bicycles and/or the realisation of a national police registration for stolen bicycles [26].

It is also recommended to increase Workplace Shower Facilities for cyclists. Facilitate bicycle commuting by requiring new developments to provide shower and changing facilities, and/or offer grant programmes for existing buildings to add shower facilities for cyclists.

The City of San Sebastian (Spain) has started a large programme for developing the cycling culture in the city, together with the creation of a new cycling network. The European Mobility Week represents the perfect opportunity to promote the benefits of bicycles, to organise bicycle training and free maintenance, as well as to create new cycle lanes. This comprehensive programme to raise awareness on sustainable urban mobility and soft modes also includes road safety educational activities targeted to children. These actions lead to a clear modal shift in favour of bicycles. In 2007 the city enjoyed a 4 % modal share for bicycles, which is a tremendous increase compared to previous years [27].

Walking

As previously stated for '*Cycling*', increasing the modal share for walking requires a dense network of well-maintained routes that are both safe to use and perceived by the public as safe to use. Spatial planning should reserve the space that is necessary for the 'walking infrastructure' and ensure that local services are sited within walking distance from residential areas.

Many urban areas have produced design manuals that provide the detailed specifications for the practical tools and techniques that deliver high-quality, walking friendly urban environments. Examples of such environments are 'Pedestrian only zones' and 'low speed zones' with lower vehicle speed limits that allow pedestrians and cars safely share the same space. In these areas pedestrians always have priority over cars.

3. Making travel by car less attractive [28]

Walking, cycling and public transport can become more attractive alternatives if car travel becomes more difficult or expensive. Disincentives include:

Pricing [29]

By making car drivers pay a fee for driving in the city (centre), drivers can be charged some of the social costs of urban driving, thus also making the car a less attractive option. Experience from local authorities that implemented congestion charges, shows that they can reduce car traffic considerably and boost the use of other transport modes. Pricing can be an effective instrument to reduce congestion and increase accessibility for public transport.

(23) *More information about cycling policies, increasing bicycle use and safety, by implementing audits in European cities and regions, can be found in the ByPad project webpage* ***www.bypad.org*** *and* ***www.astute-eu.org****. Information on mobility management can be found on* ***www.add-home.eu****. All these projects are supported by Intelligent Energy Europe. 'National Policies to Promote Cycling' OECD –* ***http://www.internationaltransportforum.org/europe/ecmt/pubpdf/04Cycling.pdf***

(24) ***www.internationaltransportforum.org***

(25) ***http://www.internationaltransportforum.org/europe/ecmt/pubpdf/04Cycling.pdf*** *contains 'National Policies to Promote Cycling' OECD – This document is addressed to national authorities, but most of the policies proposed in this document may be used or adapted by local authorities.*

(26) *Policies implemented by the Dutch Ministry of Transport, Public Works and Water Management. 'National Policies to Promote Cycling' document – OECD.*

(27) *Example from the European Mobility Week Best Practice Guide 2007* ***http://www.mobilityweek.eu/IMG/pdf_best_practice_en.pdf***

(28) *Measures aimed at making travel by car less interesting should be developed at the same as those aimed at offering better alternatives to users. In order to avoid negative consequences, these types of measures should be debated and planned thoroughly.*

(29) *Further information on urban road user charging may found on the CURACAO – Coordination of Urban Road User Charging Organisational Issues – project webpage. This project has been funded by the European Commission through the FP6 programme.* ***www.curacaoproject.eu***

Parking management

Parking management is a powerful tool for local authorities to manage car use. They have several tools to manage parking, e.g., pricing, time restrictions and controlling the number of available parking spaces. Parking time restriction for non-residents, e.g., to two hours, is a proven tool to reduce commuting by car without affecting accessibility to urban shops.

The number of parking spaces is sometimes regulated by the local building act, demanding a certain number of parking spaces for new developments. Some local authorities have building regulations, where location and accessibility by public transport, influence the number of parking spaces allowed. Adequate pricing of urban parking lots is another important tool with similar potential to influence urban driving as congestion charging.

GRAZ (AT): LOWER PARKING TARIFF FOR LOW EMISSION VEHICLES

Low emission vehicles can get a 30 percent reduction of parking fees in Graz. This new differentiated parking system is expected to encourage more citizens to use low emission vehicles. Drivers of non low emission vehicles have to pay € 1.20 per hour, whereas low emission vehicles pay € 0.80 per hour. Hence, the scheme gives real benefits to low emission vehicles and provides a popular selling point of the new system.

In order to get the reduction, the car has to comply with EURO 4 emissions standards (all new cars sold after 1st January 2005 must comply with EURO 4 emissions standard) and be low CO_2 emission. Petrol cars have indeed to emit less than 140 gCO_2/km, whereas diesel cars have to emit less than 130 gCO_2/km and be fitted with a particles trap.

To get the special fee, the drivers will have to register their vehicle at the city council. Then they will get a special parking coin ('Umweltjeton') and a special sticker. The sticker is an official document that is filled out by the city and includes the car number, type of car, colour of the car and the official seal of the city of Graz. The Umweltjeton and the special sticker are free, so no extra registration fee is applicable. The sticker is valid for two years; the user can apply for a time prolongation of the sticker. The Umweltjeton is to be inserted into parking machines to trigger the fee reduction. Once inserted, the parking ticket is marked in the upper corner with a U meaning 'Umweltticket' (environmental friendly ticket). The sticker has to be located on the dashboard behind the windscreen to be clearly visible for the enforcement team.

Source: CIVITAS initiative ***www.civitas-initiative.org***

This type of actions shall be done with the support of technical and social studies aimed at ensuring equal opportunities among the citizens.

4. Information and marketing

Local marketing campaigns that provide personally tailored information about public transport, walking and cycling alternatives have been successful in reducing car use and increasing levels of public transport use. These campaigns should also use arguments of health and environmental benefits provided by walking and cycling.

Information about how to start a campaign and where sources of information can be found are available in the report 'Existing methodologies and tools for the development and implementation of SEAP' on methodologies collection (WP1). The full version of this document can be downloaded from the Institute for Energy (30) webpage. As an example of a successful awareness campaign, the European Commission DG ENER organises every year the European Sustainable Energy Week — **www.eusew.eu**

5. Reduce municipal and private vehicle fleet emissions

Municipal and private vehicles emission reductions may occur by using hybrid or other highly efficient technologies, the introduction of alternative fuels and promoting efficient driving behaviour.

Among the main uses of green propulsion in public fleets are the following:

- Use hybrid or totally electric vehicles in public fleets. These types of vehicles use a fuel motor (hybrid vehicles) and an electric engine whose aim is the generation of power for the motion. The electricity to be supplied to the vehicles is stored in batteries that can be recharged either by plugging the car to the electrical grid or producing the electricity on board, taking advantage of braking and the inertia of the vehicle when power is not demanded. Make use of fully electric vehicles in public transport and recharge them with renewable electricity.

  According to the European Commission Directive 93/116/EC relating to the fuel consumption of motor vehicles, CO_2 emissions for two equivalent vehicles (combustion and hybrid) can be reduced by 50 % (for instance from 200g/Km to 100g/Km) (31).

(30) ***http://re.jrc.ec.europa.eu/energyefficiency/***

(31) *Further information on car emissions can be found in* ***http://www.vcacarfueldata.org.uk/index.asp*** *and* ***http://www.idae.es/coches/***

- Use biofuels in public fleets and make sure that vehicles acquired through public tenders accept the use of biofuels. The most common biofuels that can be supplied by the market are biodiesel, bioethanol and biogas. Biodiesel and bioethanol can be used in mixes in diesel and gasoline engines respectively, whereas biogas can be used in natural gas vehicles (NGV).

  The use of biofuels in vehicles, according to the 2009/28/EC Directive, will reduce GHG emissions in the range 30 %-80 % in comparison with fossil fuels over the entire life cycle. These values collected from the Directive's Annex V correspond to the case in which biofuels are produced with no net carbon emissions from land-use change.

- Like battery electric cars, if produced from renewable sources, hydrogen fuel cell vehicles generate virtually zero CO_2 emissions over the entire fuel pathway from production to use. Again, like charging electric cars, hydrogen will require installation of new distribution and refuelling infrastructure. Public fleets are ideal applications as fleet vehicles typically return to a central base for garaging, fuelling and maintenance. Hydrogen buses and delivery vans are of especial interest to cities, due to their zero emissions (ultra low if combustion engines), low noise, extended operating range and comparable refuelling times to diesel buses. Demonstrations have proved high levels of reliability and public acceptance. Development effort continues with a view to further improving performance, durability and reducing lifetime costs.
- Promote low fuel consumption, hybrid and electric vehicles through a low taxation regime. This can be done dividing vehicles in different categories according to the priorities of the local authority.

  In its Vehicles´ Fiscal Ordinance, Madrid's City council applies reductions of 50 %, 30 %, 20 % and 15 % the first 4 years to small cars and a 6 years' 75 % tax discount to hybrid vehicles. When the vehicle is fully electric, this 75 % discount is extended to its whole life.

These more energy-efficient vehicles can also be promoted by local authorities through the application of local incentives:

- Free parking.
- Test fleet (companies can borrow an alternative fuelled vehicle for a week to try out the new technology, the efficiency, the refuelling, etc.).
- Special lanes for alternative vehicles.
- Access to city zones with restrictions for high GHG emitting cars, i.e. cultural city centres, environmental zones.
- No congestion charges to clean vehicles.
- Some examples of national incentives are tax reductions on fuel, on vehicles and regulations that favour the use of alternative vehicles in companies.
- 'Environmental Loading Points' adjacent to pedestrian areas only open for alternative vehicles.
- Efficient driving behaviour may reduce cars´ GHG emissions up to 15 %. The European project ECODRIVEN – **www.ecodrive.org** – provides good practices to drivers. In the framework of the 2006/32/EC Directive, some European countries through their National Energy Action Plans have signed agreements with driving schools in order to spread the knowledge of efficient driving practices to citizens. Some of these training courses are not only addressed to car drivers, but also to truck drivers.

6. Smart transport

Urban traffic control systems are a specialized form of traffic management which integrate and coordinate traffic signal control. The primary purpose of urban traffic control is to optimise overall traffic performance in accordance with the traffic management policies of the local authority. It uses the signal settings to optimise parameters such as travel time or stops.

Urban traffic control systems are either fixed time, using programs such as TRANSYT, or real time, such as SCOOT ([32]). Widespread experiments have demonstrated the benefits of such systems, i.e. efficiency gains improve the environment, queues and safety, with typical reductions in accidents of the order of 10 %. However, it is important to bear in mind that the potential for these benefits may be eroded by induced traffic.

In addition, the control systems may be used for the regulation of priorities of different 'interest groups' such as pedestrians, cyclists, disabled persons or buses. For instance, these control systems can distinguish whether a bus is on time or late and to what degree. Depending on this analysis, the priorities of traffic regulation will be readjusted in order to minimise delays and make public transport by bus more effective.

Another possibility offered by control systems in big cities is 'Ramp Metering' which consists in a traffic management tool that regulates the flow of vehicles joining the motorway during busy periods. The aim is to prevent or delay the onset of flow breakdown. Benefits include ease of congestion and improvement in traffic flows, higher throughput during peak periods, smoother, more reliable journey times and improved energy consumption.

(32) *TRL – Transport Research Foundation based in UK* ***www.trl.co.uk***

Additional resources

1. European Commission Transport Webpage – Clean Urban Transport
   This webpage covers a big range of information on policies, programmes and tools about Urban Mobility and Clean and Energy Efficient Vehicles.
   http://ec.europa.eu/information_society/activities/ict_psp/cf/expert/login/index.cfm
2. Eltis, Europe's web portal on transport
   ELTIS supports the transfer of knowledge and exchange of experience in urban and regional transport. The database currently contains more than 1500 good practice case studies, including cases from other initiatives and databases like EPOMM, CIVITAS, SUGRE, LINK, ADD HOME, VIANOVA, etc.
   http://www.eltis.org
3. The CIVITAS Initiative
   The CIVITAS Initiative, launched in 2002, helps local authorities to achieve a more sustainable, clean and energy-efficient urban transport system by implementing and evaluating an ambitious, integrated set of technology and policy-based measures. On the website, examples of successful implementation of sustainable transport initiatives can be found.
   http://www.civitas-initiative.org
   The GUIDEMAPS handbook is designed to support transport decision-makers and designers in European cities and regions. A particular emphasis of the handbook is on using stakeholder engagement tools and techniques to overcome communication barriers in the transport decision-making process. It provides examples and Indications of the relative costs of different tools and techniques related to project management and stakeholders' engagement.
   http://www.civitas-initiative.org/docs1/GUIDEMAPSHandbook_web.pdf
4. BESTUFS project
   This project aims to maintain and expand an open European network between urban freight transport experts, user groups/associations, ongoing projects, the relevant European Commission Directorates and representatives of national, regional and local transport administrations and transport operators in order to identify, describe and disseminate best practices, success criteria and bottlenecks with respect to City Logistics Solutions.
   http://www.bestufs.net/
5. COMPRO project
   This project aims at contributing to the development of a common European market of clean vehicles, taking action on the demand side in order to homogenise the products' technical requirements and creating a buyer consortium of local authorities to pool together and reach the critical mass needed to ensure a swift market development.
   http://www.compro-eu.org
6. LUTR-PLUME
   The LUTR website hosts the PLUME project (Planning and Urban Mobility in Europe), aiming at developing strategic approaches and methodologies in urban planning that all contribute to the promotion of sustainable urban development. The website contains state-of-the-art reports and synthesis report related to many transport and mobility issues.
   http://www.lutr.net/index.asp
7. HITRANS
   HiTrans is a European project, with the aim of facilitating the development of high quality public transport in medium sized European cities (pop 100 000-500 000). The project has produced best practice guides and guidelines for use by local authorities.
   http://www.hitrans.org

8.3 Renewable energy sources (RES) and distributed energy generation (DG)

This chapter is aimed at providing examples of municipal policies and strategies to promote local electricity production (renewable or not), the use of renewable energy resources to produce thermal energy and the promotion of district heating and cooling (33) (DHC).

Renewable Energy technologies offer the possibility to produce energy with a very low impact on the environment. DHC and cogeneration (or CHP – Combined Heat and Power) offer an energy-efficient way of producing heat and electric power for urban areas. To be cost-effective and maximise impact, policies should focus on measures targeting areas with high heating and cooling loads. In addition, DHC provides a proven solution to make an efficient use of the many kinds of RES (biomass, geothermal, solar thermal) on a large scale and recycle surplus heat (from electricity production, fuel and biofuel-refining, waste incineration and from various industrial processes).

Distributed electricity generation allows to reduce electricity transport and distribution losses and to use microcogeneration and low-scale renewable energy technologies. Distributed energy generation associated with unpredictable (cogeneration, solar photovoltaic, wind, biomass…) renewable energy sources is becoming an important issue in the European Union. The electricity grid must be able to distribute this energy to the final consumers when the resources are available, and rapidly adapt the demand, or cover the energy required using more adaptable (for example hydro or biomass) technologies when the former are not available.

Although there are a wide range of policies to promote RES and DG, some of them are under national or regional competences. For this reason, all the policies proposed in this chapter should be complemented by a close cooperation with the different public administrations playing a role in this sector.

(33) *IEA, 2004, 'Coming in from the Cold. Improving District Heating Policy in Transition Economies,'* ***http://www.iea.org/textbase/nppdf/free/2004/cold.pdf*** *and IEA, 2009, 'Cogeneration and District Energy – Sustainable energy technologies for today… and tomorrow',* ***http://www.iea.org/files/CHPbrochure09.pdf***

Local Energy Generation Policies

1. Give a good example and support the development of local energy generation

- Perform an analysis of the legal, physical (resources), social and economical barriers hindering local energy generation, and provide corrective actions (subsidies, regulation, campaigns…).

> **Some examples:**
> Evaluation of geothermal energy potential considering legal and technical barriers of ground perforation and the environmental effect on the underground water layer.
>
> With regard to the use of biomass, make a technical and economical evaluation of the potential of the biomass harvested in public spaces, companies and citizens´ properties.
>
> Bring waste incineration closer (as close as permitted by the local regulation) to cities rather than establishing them on the green field, in order to make possible covering heat demands by recovering the heat from the incineration plant in a District Heating and Cooling plant.

- Identify public and private high thermal energy consuming buildings/facilities and design a high replication strategy to replace old heating plants by cogeneration or renewable energy installations (or a combined installation). Consider in the strategy not only technical aspects but also propose innovative financing schemes. Typical highly energy consuming public facilities are: Swimming pools, sports facilities, office buildings, hospitals or retirement homes. For instance, the following actions (high replication potential) are proposed:

> Substitution of a swimming pool's old heating plant by an installation of a combined solar thermal and biomass boilers, financed through an ESCO scheme.
>
> Substitution of the old heating and cooling plants by trigeneration installations to provide the base demand of heat and cold throughout the year in municipal buildings.

These actions have a high replication potential in some private sectors such as food industry, or hotels among others. For this reason a strong communication policy is essential to share the results with the private sector.

- Introduce renewable energy installations' requirements (such as space for biomass supply and storage facilities of raw material to the biomass boiler or free space on flat roofs to facilitate the use of solar systems) in the design of new public buildings. When it is possible, implement DHC grids in public buildings areas.
- Show publicly the successes of renewable energy measures implemented in public buildings.

> Install visual consoles indicating the amount of CO_2 emissions avoided is a simple and graphic way to show the immediate effects of the action.

- Integrate the utilities companies in the new projects of distributed energy generation in order to take advantages of their experience, facilitate the access to the grid and to a large amount of individual consumers.
- Promote pilot projects to test and show technologies and attract the interest of stakeholders.

> Test non-spread technologies such as low-power absorption chillers or microcogeneration. Show the pilots installations and results (positive and negative) to the stakeholders.

- Implement or make compulsory district heating/cooling, integrated renewable energy sources (solar thermal, solar PV and biomass) or microcogeneration in social housing. This entails adapting the design of social buildings to the requirement of these technologies.

2. Provide information and support to the stakeholders

- Organise informative meetings with stakeholders to demonstrate the economic, social and environmental advantages of energy efficiency and renewable energy sources. Provide financial resources to consumer associations and NGOs to disseminate these benefits to final consumers. Consider promoting distributed energy generation as a marketing project in which it is essential that final consumers trust this product.
- Reach agreements with other public entities or associations, providing training courses focused on technical, environmental and financial issues to installers, consulting and engineering companies. As an example, training materials (34) may be found on European projects´ web-pages funded under Intelligent Energy Europe.
- Create an info-portal on the renewable energies and energy-efficiency sectors in your city, with practical and timely information for citizens (where to buy biomass, where are the best areas to install wind energy or solar thermal/photovoltaic collectors, list of installers and equipment…). Such database may include information on best practices in your city.

(34) *Training material may be downloaded from: ACCESS project* ***www.access-ret.net***

- Offer free advice and support to stakeholders. More than 350 local and regional Energy Agencies all over Europe are already offering many relevant services. Therefore, take advantage of their knowledge and get in touch with the closest one.
- Motivate citizens to put aside organic waste, providing specific rubbish bin. Use it to produce biogas in the waste treatment plants. Do the same in the water treatment plants. Make use of the biogas produced in a cogeneration plant or in a biogas/natural gas public vehicles fleet (35).

3. **Set up regulations and actions that promote local energy generation projects**

- Modify urban planning regulation to consider the necessary infrastructures required to conduct heat pipelines through public spaces in new urban development projects. In the case of DHC, apply the criteria used to install water, electricity, gas and communication pipelines.
- Adapt the administrative procedures to shorten the time required to obtain permits, and reduce local taxes when energy-efficiency improvements or renewable energies sources are included in the proposals. Declare these projects as 'Public Interest' and apply them advantageous administrative conditions with respect to non-energy efficient projects. The development of a DHC implies not only major investments but also compliance with authorisation and licensing procedures. Long and uncertain negotiations with authorities can become a barrier. Administrative procedures for developing infrastructures should be clear, transparent and quick enough to facilitate the development of DHC projects.
- Contact networks of other local authorities or European/national/regional local authorities and produce a common proposal of new regulation for the promotion of distributed energy generation addressed to the relevant public authorities.
- When needed, set up rules (regulate) to clarify roles and responsibilities of all parts involved in selling and buying energy (for example in those countries without experience and regulation on district heating and cooling). Check that duty and responsibilities have been clearly identified and that each part is aware of them. In the energy-selling sector, make sure the measurements of energy are in accordance with a recognised standard (for example IPMVP). Transparency is a key aspect from the point of view of consumers and investors. It is suggested that the 'rules of the games' be in force as soon as possible. Convoke all stakeholders in order to obtain their views and have a good understanding of their interest and concerns.

4. **Ensure the availability of space to achieve projects**

- If needed, provide public space to install local energy generation installations. Some European local authorities offer a piece of land to private companies to rent with the aim of producing energy by means of photovoltaic collectors. The contract duration is established beforehand and the objective is to exploit large unused spaces to promote renewable energies.

CONCRETE EXAMPLE ON PROMOTING SOLAR ENERGY

In 2005 the City of Munich (Germany) received the 'Capital of energy-efficiency' award. As part of a comprehensive climate protection programme, the city offers the roof surfaces of its public buildings (mainly schools) for private photovoltaic investments. The city has developed a tendering scheme to select the investors.

Half of the scheme is reserved to citizens' groups. If there are several applicants for one roof, the winner is selected through a draw. The roofs are free of rent, but users sign a contract allowing them to use the roof under certain conditions. The users are required to pay a deposit over the contract period, are responsible for checking the condition of the roof surface and required to display the system to the public.

The last two calls allowed generating more than 200 000 kWh/year of photovoltaic electricity. The challenge of the call is to produce around 400 000 kWh/year of photovoltaic electricity, using the schools' buildings roofs (around 10 000 m^2 available for this call).

*Source: Guide for local and regional governments 'Save the Energy, save the climate, save money' (CEMR, Climate Alliance, Energie-Cités 2008) – **http://www.ccre.org/bases/T_599_34_3524.pdf***

Additional resources

1. International Energy Agency (IEA)
   IEA's Programme of Research, Development, and Demonstration on District Heating and Cooling, including the integration of Combined Heat and Power.
   http://www.iea-dhc.org/index.html
2. ELEP Project
   ELEP (European Local Electricity Production) is a European Project supported by Intelligent Energy Europe that offers technical and policies information, tools and best practices on local electricity generation.
   www.elep.net
3. ST-ESCOs Project
   ST-ESCOs (Solar Thermal Energy Services Companies) offers technical and economical software tools aimed at studying the feasibility of ST-ESCO projects, guiding information and best practices examples. Supported by Intelligent Energy Europe.
   www.stescos.org

(35) *Further information in the NICHES + project webpage **www.niches-transport.org**. This project is funded by the European Commission DG Research through the 7th Framework Programme (FP7). The mission of NICHES+ is to promote innovative measures for making urban transport more efficient and sustainable and to move them from their current 'niche' position into a mainstream urban transport application.*

4. Intelligent Energy – Europe programme
   The **Intelligent Energy – Europe programme** is the EU's tool for funding action to improve market conditions on terms of energy efficiency and usage of renewable energy sources. Local energy generation is part of the target areas.
   http://ec.europa.eu/energy/intelligent/index_en.html
5. ECOHEATCOOL Project
   The overall purpose of this project is to communicate the potential of district heating and cooling to offer higher energy efficiency and higher security of supply with the benefit of lower carbon dioxide emissions. Supported by Intelligent Energy Europe.
   www.ecoheatcool.org
6. Euroheat & Power
   Euroheat & Power is an association uniting the combined heat and power, district heating and cooling sector throughout Europe and beyond, with members from over thirty countries.
   www.euroheat.org

8.4 Public procurement ([36])

1. Green Public Procurement

Public procurement and the way procurement processes are shaped and priorities are set in the procurement decisions, offer a significant opportunity for local authorities to improve their overall energy consumption performance.

Green public procurement means that public contracting authorities take environmental considerations into account when procuring goods, services or works. **Sustainable public procurement** goes even further and means that the contracting authorities take into account the three pillars of sustainable development – the effects on environment, society and economy – when procuring goods, services or works.

Energy efficient public procurement allows improving energy efficiency by setting it as relevant criteria in the tendering and decision-making processes related to goods, services or works. It applies to the design, construction and management of buildings, the procurement of energy consuming equipment, such as heating systems, vehicles and electrical equipments, and also to the direct purchase of energy, e.g. electricity. It includes practices such as life-cycle costing ([37]), the setting of minimum energy-efficiency standards, the use of energy efficient criteria in the tendering process, and measures to promote energy efficiency across organisations.

Energy-efficient procurement offers public authorities, and their communities, social, economic and environmental benefits:

- By using less energy, public authorities will reduce unnecessary costs, and save money.
- Some energy-efficient goods, such as light bulbs, have a longer lifetime and are of higher quality than their cheaper alternatives. Purchasing them will reduce valuable time and effort involved in frequently replacing equipment.
- Reducing CO_2 emissions as a result of energy-efficient procurement will help public authorities to decrease their carbon footprint.
- Through leading by example, public authorities help to convince the general public and private businesses of the importance of energy efficiency.

The interest in developing Green Public Procurement is not only its impact in terms of CO_2 emission reduction, whose average (see study 'Collection of statistical information on Green Public Procurement in the EU' ([38]) carried out for the European Commission-DG Environment) is 25 %, but also in terms of its financial impact, whose average is 1.2 % of savings. Here are some examples of energy-efficient measures proposed in high-priority product groups:

PRODUCT GROUP	EXAMPLES OF PUBLIC PROCUREMENT REQUIREMENT
Public transport	Purchase low-emission buses and public fleet vehicles. The buses have to be equipped with driving-style meters to monitor fuel usage.
Electricity	Increase the share of electricity from renewable sources going beyond national support schemes. This measure can be completed by including the purchase of energy-efficiency services. For example ESCOs.
IT products	Purchase of environmentally friendly IT goods that meet the highest EU energy standards for energy performance. Provide training to users on how to save energy using their IT devices.
Building construction/ renovation	Use of localised renewable energy sources (RES). Impose high efficiency standards that reduce the building's energy consumption (see chapter on building policies).

([36]) *Source: European Commission DG ENV* ***http://ec.europa.eu/environment/gpp/index_en.htm www.iclei-europe.org/deep and www.smart-spp.eu***

([37]) *Life-cycle costing refers to the total cost of ownership over the life of an asset. This includes acquisition (delivery, installation, commissioning), operation (energy, spares), maintenance, conversion and decommissioning costs.*

([38]) *This study can be downloaded from* ***http://ec.europa.eu/environment/gpp/study_en.htm****. The report presents the statistical information and conclusions about the investigation done in the 7 most advanced European Countries in Green Public Procurement. It was found that the CO_2 emissions savings was in the range -47 %/-9 % and the financial impact was in the range -5.7 %/+0.31 %.*

Green, sustainable or energy-efficient public procurement are highly recommended. However, in the context of the Covenant of Mayors, only measures related to energy-efficient public procurement will be reflected in the CO_2 emission inventories. In fact the Covenant of Mayors is mainly focusing on energy consumption and on emissions that occur on the territory of the local authority.

The new Directive 2009/33/EC on the promotion of clean and energy efficient vehicles requires that lifetime impacts of energy consumption, CO_2 and pollutant emissions are taken into account in all purchases of public transport vehicles. Member States shall bring into force the necessary laws to comply with this directive by 4 December 2010.

Purchases of public transport vehicles represent a key market of high visibility. The application of this Directive therefore can promote a broader market introduction of clean and energy efficient vehicles in the cities and reduce their costs through economies of scale, resulting in a progressive improvement of the whole vehicle fleet.

2. Joint Public Procurement (39)

'**Joint procurement**' (JP) means combining the procurement actions of two or more contracting authorities. The key defining characteristic is that there should be only one tender published on behalf of all participating authorities. Such JP activities are not new – in countries such as the UK and Sweden public authorities have been buying together for a number of years – though in many European countries, especially in the South, there is often very little or no experience in this area.

There are several very clear benefits for contracting authorities engaging in JP arrangements:

- **Lower prices** – Combining purchasing activities leads to economies of scale. This is of particular importance in the case of a renewable energy project whose costs may be higher than conventional projects.
- **Administrative cost savings** – The total administrative work for the group of authorities involved in preparing and carrying out one rather than several tenders can be substantially reduced.
- **Skills and expertise** – Joining the procurement actions of several authorities also enables the pooling of different skills and expertise between the authorities.

This model for Public Procurement requires agreement and collaboration among different contracting authorities. Therefore, a clear agreement on needs, capacities, responsibilities and the common and individual legal framework of each part is a must.

GOOD PRACTISE EXAMPLE: JOINT PROCUREMENT OF CLEAN VEHICLES IN STOCKHOLM (40)

The City of Stockholm and other Public Administrations organised a joint procurement of clean cars. The city worked to introduce a large number of clean vehicles and mopeds to the fleet of vehicles used for city purposes. In 2000 there were around 600 clean vehicles operating in the city. There is a plan to increase the number of clean vehicles in the region to about 10 000 by around 2010. The most common fuels are ethanol and biogas and the clean vehicles are expected to use 60 % environmental fuels and the remainder petrol or diesel and electricity. More filling stations for environmental fuel will be required to enable clean vehicles to use fuels other than petrol and diesel. By 2050, it is expected that all cars will be replaced by clean vehicles.

Carbon dioxide reduction: 2005 1 600 tons per year – 2030/2050 480 000 tons per year.

Costs: SEK 6M per year (around 576 000€).

3. Green Electricity Purchasing (41)

The liberalisation of the European energy market offers local authorities the possibility of choosing freely their energy provider. According to the Directive 2001/77/EC electricity produced from renewable energy sources or Green Electricity can be defined as: 'electricity produced by plants using only renewable energy sources, as well as the proportion of electricity produced from renewable energy sources in hybrid plants also using conventional energy sources and including renewable electricity used for filling storage systems, and excluding electricity produced as a result of storage systems'.

In order to be sure that the electricity supplied comes from a renewable energy source, consumers have the possibility to request guarantees of origin certificates of the electricity. This mechanism has been foreseen in the Directive 2001/77/EC. The supplier has also the possibility to provide independent proof of the fact that a corresponding quantity of electricity has been generated from renewable sources, or produced by means of high-efficiency cogeneration.

(39) *Guidelines for the implementation of Green Public Procurement and Joint Public Procurement can be found in the webpage of LEAP project* ***www.iclei-europe.org/index.php?id=3113****. This project is funded by the European Commission's DG ENV through a project LIFE.* ***http://ec.europa.eu/environment/life/index.htm***

(40) *From Stockholm's action programme against Greenhouse Gas Emissions (2003).*

(41) *Further information on* ***www.procuraplus.org***

PREVIOUS EXPERIENCE OF GREEN ELECTRICITY PURCHASE PERFORMED BY THE GERMAN PUBLIC ADMINISTRATION INCLUDED THE FOLLOWING SPECIFICATIONS IN THE CALL FOR TENDERS

1. 100 % of electricity to come from renewable energy sources as defined by European Directive 2001/77/EC.
2. The RES-E supply to be combined with certified CO_2 reduction during the delivery period, meaning that:
   a. CO_2 reduction achieved during the delivery period has to amount to at least 30 % of the amount of average power supply during the same period; and
   b. proof of the levels of CO_2 reduction realised through new plants, i.e. plants coming into operation in the year of actual supply, must be provided. Proof must be given through the provision of specific data record sheets.
3. Guarantee of Origin: The origin of the electricity must be clearly traceable and based on identifiable sources. In case there are various sources, the split between the sources must be clearly explained. Special data record sheets serve to provide proof of the origin of the electricity and the expected CO_2 reduction achieved during the delivery period. The bidder may supply renewable electricity from plants that are not mentioned in the contract, however, must also meet the targeted levels of CO_2 reductions indicated in the bid.
4. Exclusion of subsidised supply: The supplier is required to confirm in the form of a self declaration that the power supply has not been subsidised, either entirely or partly at domestic or international level.
5. During the award phase, additional points were awarded to the supplier whose bid went beyond the minimum requirement of achieving CO_2 reductions of 30 %, compared to the existing energy mix in Germany at that time. The most economically advantageous bid was determined from the best price-performance ratio.

Price differences between conventional and green electricity depend on the status of liberalisation, the features of the national support schemes and the existence of green electricity suppliers. Green electricity is often more expensive, although price differences are narrowing substantially, and there are cases where green electricity is even available at a cheaper rate. Green electricity has proved to be a product group which is available for public procurement on a competitive basis.

Additional resources

1. European Commission – DG Environment
   The webpage of DG Environment of the European Commission offers guidelines, good practices, previous experiences, links and FAQs concerning Green Public Procurement.
   http://ec.europa.eu/environment/gpp/index_en.htm
2. ICLEI – Procura+
   Procura+ is an initiative of ICLEI that provides further information on Green Public Procurement.
   www.procuraplus.org
3. SENTERNOVEM
   SenterNovem has developed criteria and practical instruments to implement Sustainable Procurement to incorporate sustainability in procurement processes and tendering procedures.
   http://www.senternovem.nl/sustainableprocurement/index.asp
4. CLIMATE ALLIANCE – PRO-EE
   The project Pro-EE ('Public procurement boosts Energy Efficiency') aims to improve energy efficiency through sustainable public procurement. It develops model procedures and networking approaches that can be implemented by any public authority in Europe.
   http://www.pro-ee.eu/materials-tools.html

8.5 Urban & land use planning

Land use planning has a significant impact on the energy consumption in both the transport and building sectors. Strategic decisions concerning urban development, such as avoiding urban sprawl, influence the energy use within urban areas and reduce the energy intensity of transport. Compact urban settings may allow more cost-effective and energy-efficient public transport. Balancing housing, services and work opportunities (mixed use) in urban planning have a clear influence on the mobility patterns of citizens and their energy consumption. Local and regional governments can develop sustainable mobility plans and encourage a modal shift towards more sustainable transport modes.

Building shape and orientation play an important role from the point of view of heating, cooling and lighting. Adequate orientation and arrangement of buildings and built-over areas make it possible to reduce recourse to conventional air conditioning. Planting trees around buildings to shade urban surfaces, and green roofs to reduce their temperature, can lead to substantial reductions in energy consumption for air-conditioning. Proportion between width, length and height, as well as its combination with the orientation (42) and proportion of glazed surfaces, should be studied in detail when new urban developments are proposed. In addition, sufficient green areas and planting trees next to the building can lead to reduction in the energy needs and then reduce greenhouse gases.

(42) *A. Yezioro, Isaac G. Capeluto, E. Shaviv – Design guidelines for appropriate insolation of urban squares – Renewable Energy 31 (2006) 1011-1023.*

There are also examples of local authorities that have started to develop CO_2 free settlements or even set up an overall objective to become 'fossil fuel free'. CO_2 free settlements mean retrofitting districts in such a way that they do not consume fossil fuels.

Urban density is one of the key issues influencing energy consumption within urban areas. In the table below, the effects (both positive and negative) of density are considered. As it can be seen in the table, urban density may have conflicting effects.

Urban planning is a key instrument allowing the establishment of energy-efficiency requirements for new and renovated buildings.

TABLE 1. POSITIVE AND NEGATIVE EFFECTS OF URBAN DENSITY ON ENERGY CONSUMPTION (43)

PARAMETERS	POSITIVE EFFECTS	NEGATIVE EFFECTS
Transport	Promote public transport and reduce the need and length of trips by private cars.	Congestion in urban areas reduces fuel efficiency of vehicles.
Infrastructure	Shorten the length of infrastructure facilities such as water supply and sewage lines, reducing the energy needed for pumping.	–
Vertical transportation	–	High-rise buildings involve lifts, thus increasing the need for electricity for the vertical transportation.
Ventilation	–	A concentration of high-rise and large buildings may impede the urban ventilation conditions.
Thermal performance	Multiunit buildings could reduce the overall area of the building's envelope and heat loss from the buildings. Shading among buildings could reduce solar exposure of buildings during the summer period.	–
Urban heat island	–	Heat released and trapped in urban areas may increase the need for air conditioning The potential for natural lighting is generally reduced in high-density areas, increasing the need for electric lighting and the load on air conditioning to remove the heat resulting from the electric lighting.
Energy systems	District cooling and heating systems which are usually more energy efficient, are more feasible as density is higher.	–
Use of solar energy	–	Roof and exposed areas for collection of solar are limited.
Ventilation energy	A desirable air-flow pattern around buildings may be obtained by proper arrangement of high-rise building blocks.	–

(43) *This table has been extracted from: Sam C.M. Hui – Low energy building design in high-density urban cities – Renewable Energy 24 (2001) 627-640.*

GRONINGEN (THE NETHERLANDS)

Since the 1960s, the municipality of Groningen has been way ahead in its traffic plans and spatial planning policies; implementing urban policies which have lead to a car free city centre and a mixed public space, with all areas easily reachable by bicycle.

The basic concept used in urban planning was based on the 'compact city' vision, which placed an integrated transport system high on the municipal agenda. The main objective was to keep the distances between home and work, or home and school relatively short, so that the use of public transport forms a good alternative to the private car in terms of travelling time The residents should have the opportunities to shop for their everyday needs in their own neighbourhoods, while the city centre should serve as the main shopping centre. Sport facilities and schools should be closed to the living areas.

A series of sound transportation policies has been developed to favour walking, public transport and predominantly cycling. A traffic circulation plan divided the city centre into four sections and a ring road was built encircling the city and reducing access to the centre by car. During the 1980s and 1990s a parking policy was strictly implemented. Car parking with time restrictions was introduced in a broad radius around the city centre. Park and ride areas were created combined with city buses and other high quality public transport. Investments in cycling infrastructure have been made to expand the network of cycling lanes, improving the pavements, bridges for cyclists, many more bike parking facilities etc. Co-operation and participation by the local population, or particular social groups has been sought in relation to various actions. In addition, an extension of the travel management policy, based on a regional mobility plan, has been prepared in co-operation with provincial and national decision makers. This has resulted in a city centre which is entirely closed off to cars; it is only possible to travel between sectors by walking, bicycle or public transport.

Concrete results? See here:
http://www.fietsberaad.nl/library/repository/bestanden/document000113.pdf

*Sources: EAUE database 'SURBAN – Good practice in urban development' and the 'Fiets Beraad' website (**www.fietsberaad.nl**).*

Urban regulations should be devised in such a way not to deter energy efficiency and RES. For instance, long and complex authorisation procedures will be a clear obstacle to RES and energy-efficiency promotion and should be avoided. Such considerations should be integrated into the local authorities' urban planning schemes.

QUICK TIPS

- Introduce energy criteria in planning (land use, urban, mobility planning).
- Promote mixed use (housing, services and jobs).
- Plan to avoid urban sprawl:
  - control the expansion of built areas;
  - develop and revitalize old (deprived) industrial areas;
  - position new development areas within the reach of existing public transport lines;
  - avoid 'out-of-town' shopping centres.
- Plan car free or low car use areas by closing areas to traffic or introducing congestion charge schemes, etc.
- Promote solar oriented urban planning, for example by planning new buildings with an optimum sun-facing position.

Additional resources

1. Land Use Planning and Urban Renewal examples are available on **http://www.eukn.org/eukn/themes/index.html**
2. Document: 'Community Energy; Urban Planning for a low carbon future'. **http://www.chpa.co.uk/news/reports_pubs/Community%20Energy-%20Urban%20Planning%20For%20A%20Low%20Carbon%20Future.pdf**

8.6 Information and communication technologies (ICT)

In developing your SEAP, it is essential to take advantage of the key role that can be played by ICT in the creation of a low carbon society.

ICTs play a key role in the dematerialisation of our daily way of life. The substitution of high carbon products and activities with low carbon alternatives, e.g. replacing face-to-face meetings with videoconferencing, or paper with e-billing, could play a substantial role in reducing emissions. Like e-commerce, e-government could have a significant impact on reducing GHG emissions.

Currently the largest opportunity identified within dematerialisation is teleworking – where people work from home rather than commute into an office. Dematerialisation could also reduce emissions indirectly by influencing employees' behaviour, building greater awareness of climate change and creating a low-carbon culture throughout businesses, though these impacts are less quantifiable. Dematerialisation at the very least provides alternatives, allowing individuals to control their carbon footprint in a very direct way.

Finally, ICT has also a key role in enabling efficiency: consumers and businesses cannot manage what they cannot measure. ICT provides solutions that enable us to 'see' our energy and emissions in real time and provide the means for optimising systems and processes to make them more efficient.

Here are some examples of measures that could be implemented at local level:

- Stimulate an open debate with relevant stakeholders in relevant areas with a high potential impact like energy-smart homes and buildings, smart lighting, personalised public transport…
- Bring together stakeholders in the ICT and energy domains to create synergies and new forms of collaboration. For example, liaise with the utilities company in order to ensure adequate promotion and usage of smart-metering. Make sure the selected smart-meters provide a proper balance between additional cost to the customer and potential benefits in terms of energy savings, or promote the delivery of broadband infrastructure and collaborative technologies enabling the widest and most efficient usage of the e-technologies.
- Develop e-government, tele working, teleconferencing, etc. within the local administration and promote its usage.
- Integrate ICT to improve energy efficiency in public building, public lighting and transport control.
- Better management of the local authority's vehicle fleet: implement eco-driving, (real-time (44)) route optimisation and fleet management and supervision.
- Monitor and make more visible GHG emission and other environmental data to citizens. This real-time monitoring provides the means to study emissions patterns, track progress and interventions (45).
- Demonstrate that local authorities can lead by practical example by ensuring that a city's own ICT infrastructure and digital services have the smallest possible carbon footprint. Promote these practices towards the private sector and wider community.

It is important to appreciate that ICT itself has a carbon footprint, however green ICT policies need to be in place to ensure that ICT remains a solution to, and not a part of, the climate change problem.

Additional resources

1. The European Commission's DG INFSO webpage contains a large amount of information about the possibilities of ICT in SMART Buildings.
   http://ec.europa.eu/information_society/activities/sustainable_growth/index_en.htm
2. The Climate Group and the Global eSustainability Initiative (2008) published a report promoting the advantages of ICT: 'SMART 2020: Enabling the Low Carbon Economy in the Information Age'.
   http://www.theclimategroup.org/assets/resources/publications/Smart2020Report.pdf

(44) *With information on traffic density, weather, alternative routes…*

(45) *Contact details and further information available on **www.eurocities.eu** and **www.clicksandlinks.com***

CHAPTER 9
Financing sustainable energy action plans

9.1 Introduction

A SEAP's successful implementation requires the sufficient financial resources. It is therefore necessary to identify available financial resources, as well as the schemes and mechanisms for getting hold of these resources in order to finance the SEAP actions.

Energy-efficiency financing decisions must be compatible with public budgeting rules. For example, the cash generated by energy-efficiency improvements and reductions in the energy bill may lead to a reduction of financial resources in the following budgeting period. This is due to the fact that most often EE projects are financed via capital expenditure budgets, where energy bills are paid from operational budgets.

The local authority should allocate the necessary resources in the annual budgets and make firm commitments for the years to come. As municipality resources are scarce, there will always be competition for available financial funding. Therefore, efforts should be continuously made to find alternative sources of resources. Regarding multi-annual commitment, different political parties should give their approval by consensus in order to avoid disruption in the development of the SEAP when a new administration is elected.

Successful SEAP actions will reduce the long-term energy costs of the local authority, the inhabitants, companies, and in general all stakeholders. In considering the costs of SEAP actions, local authorities should also consider their co-benefits: benefits to health, quality of life, employment, attractiveness of the city, etc.

9.2 Initial considerations

Local authorities may be tempted to opt for energy-efficiency projects with short paybacks. However, this approach will not capture the majority of potential savings available through energy retrofits. Instead, it is recommended that all profitable options are included and in particular those that yield a rate of return higher than the interest rate of the investment capital. This approach will translate into greater savings over the long term.

Quick paybacks on investments mean too often that organisations do not pay attention to 'life-cycle costing'. Payback time shall be compared with the lifespan of the goods to be financed. For instance, a 15 years payback time cannot be considered long when it comes to building with a lifespan of 50-60 years.

9.3 Creating bankable projects (46)

A bankable project is a clearly documented economically viable project. Building a bankable project starts with sorting out the pieces that make a project economically attractive. Initially, it is required to examine the project's key components, make sure that each aspect is properly assessed and that the plan to effectively manage that aspect is clearly presented. Each component carries a risk factor, and each risk factor carries a price tag. An effective ESCO or financial consulting expert knows how to assess each part of a financial project.

When a financing project is studied by a bank, the objective is to know the level of risk through an assessment procedure. A technical energy audit is not enough for this purpose. Other aspects such as the engineering skills (of an ESCO or the municipal energy agency for instance) or the level of commitment of each part are crucial to making this project attractive for the bank. For instance, some general requirements may be that the technology is well-proven, well adapted to the region and to produce an Internal Interest Rate greater than 10 % (47).

9.4 Most relevant financing schemes

This point describes the most frequent and general financing mechanism used for renewable energy sources and energy efficiency. Other specific programmes such as European funding are also available. Wide and updated information about these programmes can be found in the webpage of the Covenant of Mayors Office **www.eumayors.eu**

9.4.1 Revolving funds (48)

This is a financial scheme aimed at establishing sustainable financing for a set of investment projects. The fund may include loans or grants and aims at becoming self-sustainable after its first capitalisation.

(46) *Further information on financing* ***http://sefi.unep.org/fileadmin/media/sefi/docs/publications/pfm_EE.pdf***

(47) *Further information on how to produce bankable energy-efficiency projects may be found in the 'Bankable Energy-Efficiency Projects (BEEP) – Experiences in Central and Eastern Europe' brochure. Downloadable from:* ***http://www.dena.de/fileadmin/user_upload/Download/Dokumente/Publikationen/internationales/BEEP_Project_Brochure.pdf***

(48) *Further information on the EBRD-Dexia-Fondelec Revolving Fund can be found in* ***www.ebrd.com/new/pressrel/2000/17feb15x.htm*** *and in the document 'Financing Energy Efficient Homes' of the International Energy Agency (IEA)* ***http://www.iea.org/Papers/2008/cd_energy_efficiency_policy/2-Buildings/2-FinancialBarrierBuilding.pdf***

The objective is to invest in profitable projects with short payback time, be repaid, and use the same fund to finance new projects. It can be established as a bank account of the owner or as a separate legal entity. The interest rate generally applied in the capitalisation of revolving funds is lower than the market one or even 0 %. Grace periods are also frequent for the periodic payment of revolving funds, …

There are several parties in a revolving fund: The owners can be either public or private companies, organisations, institutions or authorities. The operator of the fund can be either its owner or an appointed authority. External donors and financiers provide contributions to the fund in the form of grants, subsidies, loans or other types of repayable contributions. The borrowers can be either the project owners or contractors. According to the conditions of the revolving fund, savings or earnings gained from projects should be paid back to the fund within a fixed period of time, at certain time intervals.

9.4.2 Third party financing schemes

Perhaps the easiest way for municipalities to undertake comprehensive building energy retrofits is to allow someone else to provide the capital and to take the financial risk. With these alternative methods of financing, high financing costs may be expected to reflect the fact that the debt is registered on someone else's balance-sheet. However, the interest rate is only one factor among many that should be considered in determining the suitability of a project-financing vehicle.

9.4.3 Leasing ([49])

The client (lessee) makes payments of principal and interest to the financial institution (lessor). The frequency of payments depends on the contract. The stream of income from the cost savings covers the lease payment. It can be an attractive alternative to borrowing because the lease payments tend to be lower than the loan payments; it is commonly used for industrial equipment. There are two major types of leases: capital and operating.

- **Capital leases** are instalment purchases of equipment. In a capital lease, the lessee owns and depreciates the equipment and may benefit from associated tax benefits. A capital asset and associated liability appears on the balance sheet.
- In **operating leases** the owner of the asset owns the equipment and essentially rents it to the lessee for a fixed monthly fee. This is an off-balance sheet financing source. It shifts the risk from the lessee to the lessor, but tends to be more expensive for the lessee.

9.4.4 Energy services companies ([50])

Energy Services Companies (ESCO) are described in 'Technical measures' Part III of this guidebook. The ESCO usually finances the energy-saving projects without any up-front investment costs for the local authority. The investment costs are recovered and a profit is made from the energy savings achieved during the contract period. The contract guarantees a certain amount of energy savings for the local authority, and provides the possibility for the city to avoid facing investments in an unknown field. Once the contract has expired, the city owns a more efficient building with less energy costs.

Often, the ESCO offers a performance **'guarantee'** which can take several forms. The guarantee can revolve around the actual flow of energy savings from a retrofit project. Alternatively, the guarantee can stipulate that the energy savings will be sufficient to repay monthly debt service costs. The key benefit to the building owner is the removal of **project non-performance risk**, while keeping the operating costs at an affordable level.

Financing is arranged so that the energy savings cover the cost of the contractor's services and the investment cost of the new and more energy efficient equipment. The repayment options are negotiable.

Measurements and verification of the energy and savings produced are critical for all the parts involved in the project. Therefore, a protocol ([51]) aimed at working with common terms and methods to evaluate performance of efficiency projects for buyers, sellers and financiers will be essential. As mentioned in a previous chapter, the International Performance Measurement and Verification Protocol (IPMVP) is an international set of standardised procedures for the measurement and verification (M&V) of savings in Energy-Efficiency projects (also in water efficiency). This protocol is widely accepted and adapted.

([49]) ***www.leaseurope.org/*** *is an association of car leasing European Companies.*

([50]) *Extended information available in the 'publications' section of* ***http://re.jrc.ec.europa.eu/energyefficiency/*** *and* ***http://www.worldenergy.org/documents/esco_synthesis.pdf***

In addition, the International Energy Agency´s Task XVI offers a large range of information about competitive Energy Services in ***http://www.ieadsm.org/ViewTask.aspx?ID=16&Task=16&Sort=0#ancPublications3***

([51]) *May be downloaded free from* ***www.ipmvp.org***

9.4.5 ESCO intracting model or public internal performance commitments (PICO) (52)

Besides the large private ESCO sector, a public ESCO sector called 'Interacting model', or Public Internal Performance Commitments (PICO), has mainly been used in Germany.

In the PICO model a department in the public administration acts as a unit similar to an ESCO in function for another department. The ESCO department organises, finances and implements energy-efficiency improvements mostly through a fund made up of municipal money, and using existing know-how. This allows larger cost savings and implementation of less profitable projects, which would be ignored by a private ESCO (53). However, these projects lack the energy savings guarantee, because there are no sanction mechanisms within a single organsation (even though PICO includes saving targets). This can result in lower effectiveness of the investments. Nevertheless, this scheme increases activity for energy savings.

SPECIFIC EXAMPLE IN THE CITY OF STUTTGART

The internal contracting was set up in 1995 under the direction of the Stuttgart Environmental Agency with the specific aim of establishing pre-financing for measures to conserve energy and water more rapidly, as well as implementing the measures themselves. The costs saved through these measures flow back to the Environmental Agency from the energy cost budgets of the individual departments and locally-owned utilities until the investments have been paid off. After this, the funds then become available again.

Since the concept was launched, more than 220 measures have been implemented and 8.1 million Euro invested. Both small (improvements to control technology) and large-scale (building of wood-pellet heating systems) projects have been implemented. The average period of return on invested capital is 7 years. Annual savings meanwhile amount to over 1.2 million Euro, which represents some 32 000 m^3 of water, 15 000 MWh of heat energy and 2 000 MWh of electricity. In addition to an increase in energy efficiency, city-internal contracting has also allowed the construction of systems for the use of renewable energy sources (27 % of investments). (54)

9.4.6 Public-private partnerships (PPP)(55)

In this case the local authority uses a concession scheme under certain obligations. For instance, public administration promotes the construction of a zero-emission swimming pool, or a district heating and cooling installation, by allowing a private company to run it revolving the profits on the initial investment. This kind of contract should be flexible in order to allow the private company to extend the contract in case of unexpected payback delays. Moreover, a frequent due diligence is also recommended in order to follow up the evolution of incomes.

An example of government-led third party financing is the Spanish IDAE model, which has been financing renewable projects in Spain since the late 1980s. IDAE identifies a project, provides the capital to a developer to construct it (or install the new energy-efficient equipment), and recovers its investment, plus the cost of its services, out of the energy production or savings. In other words, IDAE finances all the costs and assumes the technical responsibility of the investment. At the end of the contract, the project developer and user of the installation owns all the capital assets. In most instances the government agency IDAE works as an ESCO and has invested 95 M€ in renewable energy projects and leveraged another 104 M€ for 144 projects under the third-party finance mechanism.

(52) ***www.eceee.org/EEES/public_sector/PROSTappendix8.pdf***

(53) *Irrek et al. 2005 – PICOlight project is a project supported by the European Commission through the programme SAVE. More information on* ***http://www.iclei-europe.org/?picolight***

(54) *Example from a publication: Solutions for Change – How local governments are making a difference in climate protection (Climate Alliance 2008).*

(55) *Successful worldwide Public-Private Partnerships example can be found in the document 'Public-Private Partnerships: Local Initiatives 2007' on* ***www.theclimategroup.org/assets/resources/ppp_booklet.pdf***

CHAPTER 10
SEAP implementation

The implementation of the SEAP is the step that takes the longest time, efforts and financial means. This is the reason mobilisation of stakeholders and citizens is critical. Whether the SEAP will be successfully implemented or will remain a pile of paperwork depends to a high extent on the human factor. The SEAP 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. If people are given responsibility, encouragement, resources and are motivated, things will happen.

During the implementation phase, it will be essential to ensure both good internal communication (between different departments of the local authority, the associated public authorities and all the persons involved (local building managers…) as well as external communication (citizens and stakeholders). This will contribute to awareness-raising, increase the knowledge about the issues, induce changes in behaviour, and ensure wide support for the whole process of SEAP implementation (see chapter about the communication process).

Monitoring of progress and energy/CO_2 savings should be an integral part of SEAP implementation (see next chapter). Finally, networking with other local authorities developing or implementing a SEAP, will provide additional value towards meeting the 2020 targets by exchanging experience and best practices, and establishing synergies. Networking with potential CoM signatories, and encouraging their involvement in the Covenant of Mayors is also recommended.

SOME TIPS TO PUT A SEAP INTO PRACTICE

- Adopt a Project Management approach: deadline control, financial control, planning, deviations analysis and risk management. Use a quality management procedure (56).
- Divide the project into different parts and select persons responsible.
- Prepare specific procedures and processes aimed at implementing each part of the project. A quality system is a useful tool to make sure that procedures are in accordance with the objectives.
- Establish a score-card system for tracking and monitoring your plan. Indicators such as percentage of compliance with deadlines, percentage of budget deviations, percentage of emissions reduction with the measures already implemented and other indicators deemed convenient by the local authority may be proposed.
- Plan the follow-up with the stakeholders establishing a calendar of meetings in order to inform them. Interesting ideas could arise during these meetings or possible future social barriers could be detected.
- Anticipate future events and take into account negotiation and administrative steps to be followed by the Public Administration to start a project. Public projects usually require a long time to obtain authorisation and approvals. In this case, a precise planning including security factors is convenient mainly at the beginning of the SEAP implementation.
- Propose, approve and put into operation a training programme at least for those persons directly involved in the implementation.
- Motivate your team. This point is highly connected to the ‘building support’ chapter. Internal people are important stakeholders.
- Inform frequently the city council (or equivalent body) and politicians in order to make them an important part of successes and failures and get their commitment. This point has been considered as very important during experts’ consultations, prior to developing this guidebook.
- Some measures proposed in the SEAP may need to be tested before a massive implementation. Tools such as pilot or demonstration projects can be used to test the suitability of these measures.

(56) *The European Energy Award (EEA)* ***www.european-energy-award.org***

CHAPTER 11
Monitoring and reporting progesses

Monitoring is a very important part of the SEAP process. Regular monitoring followed by adequate adaptations of the plan allows initiating a continuous improvement of the process. As mentioned before, CoM signatories are committed to submit an 'Implementation Report' every second year following the submission of the SEAP 'for evaluation, monitoring and verification purposes'. **A specific monitoring and reporting guidebook will be published by the European Commission in 2010.**

Such implementation report should include an updated CO_2 emission inventory (MEI, monitoring emission inventory). Local authorities are encouraged to compile CO_2 emission inventories on an annual basis (see part II, chapter 5: Reporting and documentation).

However if, the local authority considers that such regular inventories put too much pressure on human or financial resources, it may decide to carry out the inventories at larger intervals. But local authorities are recommended to compile an MEI and report on it at least every fourth year, which means submitting alternatively every 2 years an **'Action Report'** – without MEI' – (years 2, 6, 10, 14…) and an **'Implementation Report'** – with MEI (years 4, 8, 12, 16…). The **Implementation Report** contains quantified information on measures implemented, their impacts on energy consumption and CO_2 emissions, and an analysis of the SEAP implementation process, including corrective and preventive measures when this is required. The **Action Report** contains qualitative information about the implementation of the SEAP. It includes an analysis of the situation and qualitative, corrective and preventive measures. **The European Commission will provide a specific template for each type of report.**

As previously mentioned, some indicators are needed in order to assess the progress and performance of the SEAP. Even if a specific monitoring and reporting guidebook will be published by the JRC, some indicators are suggested in this guidebook to give an orientation on the type of monitoring parameters that may be used.

TABLE 2. POSSIBLE INDICATORS TO MONITOR THE SEAP IMPLEMENTATION

INDICATORS	DATA COLLECTION DIFFICULTY (*)	DATA COLLECTION	POSITIVE TREND
SECTOR: Transport			
Number of public transport passengers per year.	1	Agreement with a public transport company. Select representative lines to monitor.	↑
Kms of biking ways.	1	City Council.	↑
Kms of pedestrians streets/ Kms of municipal roads and streets.	1	City Council.	↑
Number of vehicles passing fixed point per year/month (set a representative street/ point).	2	Install a car counter in representative roads/streets.	↓
Total energy consumption in public administration fleets.	1	Extract data from fuel supplier's bills. Convert to energy.	↓
Total energy consumption of renewable fuels in public fleets.	1	Extract data from biofuels suppliers' bills. Convert to energy. Sum this indicator with the previous one and compare values.	↓
% of population living within 400 m of a bus service.	3	Carry out surveys in selected areas of the municipality.	↑
Average Kms of traffic jams.	2	Performs an analysis of traffic fluidity in specific areas.	↓
Tons of Fossil fuels and biofuels' sold in representative selected gas stations.	1	Sign an agreement with selected gas station located within the municipality.	↓

(*) *1-EASY, 2-MEDIUM, 3-DIFFICULT.*

SECTOR: Buildings			
% of households with energetic label A/B/C.	2	City Council, national/regional energy agency, etc.	↑
Total energy consumption of public buildings.	1	See part II, chapter 4, energy data collection City Council.	↓
Total surface of solar collectors.	3	See part II, chapter 4, energy data collection City Council, Regional/National Public Administrations (from grants) and selected areas door-to-door surveys.	↑
Total electricity consumption of households. (*)	2	See part II, chapter 4, energy data collection Selected areas door-to-door surveys.	↓
Total gas consumption of households. (*)	2	See part II, chapter 4, energy data collection Selected areas door-to-door surveys.	↓
SECTOR: Local Energy Production			
Electricity produced by local installations. (*)	2	See part II, chapter 4, energy data collection Regional/National Public Administrations (feed-in tariffs of certificates).	↑
SECTOR: Involvement of the private sector			
Number of companies involved in energy services, energy efficiency and renewable energies business. Number of companies involved in energy services, energy efficiency and renewable energies business.	2	City Council and Regional/National Public Administrations.	↑
SECTOR: Citizens involvement			
Number of citizens attending to energy efficiency/renewable energies events.	1	City Council and Consumers Associations.	↑
SECTOR: Green Public Procurement (GPP)			
Establish an indicator for each category and compare with the typical value before implementing GPP. For example compare $kgCO_2/kWh$ of green electricity with the previous value. Use the data collected from all purchases to produce a single indicator.	2	City Council.	↑

Data collection frequency may be every 12 months (57) by default.

ILLNAU-EFFRETIKON (15,'600 INHABITANTS, SUBURBAN MUNICIPALITY, EUROPEAN ENERGY AWARD® SINCE 1998)

The city of Illnau-Effretikon in Switzerland set up a baseline emissions inventory in 2001 and approved an activity plan (similar to SEAP), based on the results of an initial energy review on the basis of the European Energy Award®. Within a project group with other eea® municipalities, an evaluation of 44 out of 87 measures of the eea assessment tool of potential CO_2 reductions and energy savings was carried out to monitor the GHG emissions. The implementation of the activity plan/SEAP is monitored in real-time by recording the CO_2 reduction as soon as a measure has been implemented and inserted in the eea assessment tool. Therefore, the assessment of the quality is accompanied by a quantitative analysis.

(*) *This data can be collected from utilities, tax offices (calculation of electricity consumption patterns analysing taxes paid for electricity) of the Public Administration or performing surveys in selected areas. Data collection from taxes can be feasible or not depending on the taxing mechanisms of each country.*

(57) *In some cases, more frequent data collection may be better. In these cases, seasonal effects must be considered in order to perform a real analysis of the situation. Once the first year has been concluded, a monthly or quarterly inter-annual analysis may be carried out.*

ANNEX I
Suggestions of aspects to be covered in the baseline reviews

SCOPE	KEY ASPECTS FOR ASSESSMENT
Energy structure and CO_2 emissions	• Level and evolution of energy consumption and CO_2 emissions by sector and by energy carrier (see part II). Global and per capita.
Renewable energies	• Typology of existing facilities of production of renewable energies. • Renewable energy production and trends. • Use of agricultural and forest biomass as renewable energy sources. • Existence of bio-energetic crops. • Degree of self-supplying with renewable energies. • Potentialities for renewable energy production: solar thermal and photovoltaic, wind, mini-hydraulics, biomass, others.
Energy consumption and energy management in the local administration	• Level and change in the energy consumption of the local administration by sector (buildings and equipment, public lighting, waste management, waste water treatment, etc.) and by energy carrier (see Part II). • Assessment of the energy efficiency of buildings and equipmen using efficiency indexes of energy consumption (for example: kWh/m², kWh/m² – user, kWh/m² hours of use). This allows identifying the buildings where there are more improvement potentialities. • Characterisation of the largest energy consumers among municipal buildings and equipment/facilities. Analysis of key variables (for instance: type of construction, heating, cooling, ventilation, lighting, kitchen, maintenance, solar hot water, implementation of best practices…). • Assessing the types of lamps, lighting and energy-related issues in public lighting. • Assessment of energy efficiency using efficiency indexes of energy consumption. • Degree and adequacy of energy management in public buildings/equipment and public lighting (including energy accounting and audits). • Established initiatives for improving energy saving and efficiency and results obtained to date. • Identification of potentialities for improvement in energy savings and efficiency in buildings, equipment/facilities and public lighting.
Energy consumption of the municipal fleet	• Evaluation of the composition of the municipal fleet (own vehicles and of externalised services), annual energy consumption (see Part II). • Composition of the urban public transport fleet, annual energy consumption. • Degree of the energy management of the municipal fleet and public transport. • Established initiatives for improving reducing energy consumption and results obtained to date. • Identification of potentialities for improvement in energy efficiency.
Energy infrastructures	• Existence of electricity production plants, as well as district heating/cooling plants. • Characteristics of the electricity and gas distribution networks, as well as any district heat/cold distribution network. • Established initiatives for improving energy efficiency of the pants and of the distribution network and results obtained to date. • Identification of potentialities for improvement in energy efficiency.
Buildings	• Typology of the existing building stock: usage (residential, commerce, services, social…), age, thermal insulation and other energy-related characteristics, energy consumption and trends (if available, see Part II), protection status, rate of renovation, tenancy, … • Characteristics and energy performance of new constructions and major renovations. • What are the minimal legal energy requirements for new constructions and major renovations? Are they met in practice? • Existence of initiatives for the promotion of energy efficiency and renewables in the various categories of buildings. • What results have been achieved? What are the opportunities?

SCOPE	KEY ASPECTS FOR ASSESSMENT
Industry	• Importance of industry sector in the energy balance and CO_2 emissions. Is it a target sector for our SEAP? • Existence of public and private initiatives address to promote energy saving and efficiency in industry. Key results achieved. • Degree of integration of energy/carbon management in industry businesses? • Opportunities and potentialities on energy saving and efficiency in industry.
Transport and mobility	• Characteristics of the demand of mobility and modes of transport. Benchmarking and major trends. • What are the main characteristics of the public transportation network? Degree of development and adequacy? • How is the use of public transportation developing? • Are there problems with congestion and/or air quality? • Adequacy of public space for pedestrians and bicycles. • Management initiatives and mobility planning. Initiatives to promote public transport, bicycle and pedestrian.
Urban planning	• Characteristics of existing and projected 'urban spaces', linked to mobility: urban density, diversity of uses (residential, economic activity, shopping, …) and building profiles. • Degree of dispersion and compactness of urban development. • Availability and location of the main services and facilities (educational, health, cultural, commercial, green space, …) and proximity to the population. • Degree and adequacy of integration of energy-efficiency criteria in urban development planning. • Degree and adequacy of integration of sustainable mobility criteria in urban planning.
Public procurement	• Existence of a specific policy commitment on green public procurement. • Degree of implementation of energy and climate change criteria in public procurement. Existence of specific procedures, usage of specific tools (carbon footprint or others).
Awareness	• Development and adequacy of the activities of communication and awareness to the population and stakeholders with reference to energy efficiency. • Level of awareness of the population and stakeholders with reference to energy efficiency and potential savings. • Existence of initiatives and tools to facilitate the participation of citizens and stakeholders in the SEAP process and the energy and climate change policies of the local authority.
Skills and expertise	• Existence of adequate skills and expertise among the municipal staff: technical expertise (energy efficiency, renewable energies, efficient transport…), project management, data management (lack of skills in this field can be a real barrier!), financial management and development of investment projects, communication skills (how to promote behavioral changes, etc.), green public procurement…? • Is there a plan for training staff in those fields?

Source: Methodology Guide for the revision of the Local Agenda 21 Action Plans in the Basque Country – UDALSAREA21 (Basque Network of Municipalities for Sustainability) ***www.udalsarea21.ent***

ANNEX II
Benefits of SEAP

The local (political) authorities can obtain the following benefits in supporting SEAP implementation:

- contribute to the global fight against climate change – the global decrease of greenhouse gases will also protect the city against climate change;
- demonstrate commitment to environmental protection and efficient management of resources;
- participation of civil society, improvement of local democracy;
- improve the city's image;
- political visibility during the process;
- revive the sense of community around a common project;
- economic and employment benefits (retrofitting of buildings…);
- better energy efficiency and savings on the energy bill;
- obtain a clear, honest and comprehensive picture of budgetary outflows connected with energy use and an identification of weak points;
- develop a clear, holistic and realistic strategy for improvement in the situation;
- access to National/European funding;
- improve citizens well-being (reducing energy poverty);
- local health and quality of life (reduced traffic congestion, improved air quality…);
- secure future financial resources through energy savings and local energy production;
- improve long-term energetic independence of the city;
- eventual synergies with existing commitments and policies;
- preparedness for better use of available financial resources (local, EU grants and financial schemes);
- better position for implementation of national and/or EU policies and legislation;
- benefits from networking with other Covenant of Mayors signatories.

ANNEX III
Key european affecting climate and energy policies at local level

1. The Energy Performance of Buildings Directive (2002/91/EC), which establishes the following obligations for Member States:
   - setting up a method to calculate/measure the energy performance of buildings;
   - setting minimum energy performance standards for new/renovated buildings;
   - setting up a certification scheme that informs potential buyers/renters of buildings (residential, commercial, …) about the energy performance of the building in question;
   - displaying an energy performance certificate in all 'public' buildings;
   - setting up an inspection scheme of the cooling and heating systems above a certain size.

This regulation was supposed to be in force in all Member States as of January 2006 (with some possible delay till January 2009 for some of the chapters), but many Member States have been late in adopting the necessary measures and laws.

2. Communication COM (2009) 490 'Action Plan on Urban Mobility' aimed at establishing the actions to be implemented through programmes and instruments.

3. Directive 93/116/EC of 17 December 1993 adapting to technical progress Council Directive 80/1268/EEC relating to the fuel consumption of motor vehicles.

4. Directive 2009/28/EC on the promotion of the use of energy from renewable sources.

5. Directive 2003/30/EC on the promotion of the use of biofuels for other renewable fuels for transport.

6. Directive 2006/32/EC of the European Parliament and of the Council of 5 April 2006 on energy end-use efficiency and energy services and repealing Council Directive 93/76/EEC.

European Commission

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