INSTRUCTIONS:

How to fill in the Sustainable Energy Action Plan template?

Introduction

All Covenant signatories commit to submitting their **Sustainable Energy Action Plans (SEAPs)**, within the year following their adhesion, and therefore showing how to reach their CO_2 reduction target by 2020.

To assist the Covenant signatories in achieving their target, a SEAP template has been developed by the Covenant of Mayors Office in close collaboration with the Joint Research Centre of the European Commission. This user-friendly document must be completed on-line in English by the Covenant signatories themselves at the same time when submitting their Sustainable Energy Action Plan in their own (national) language. The template includes three main parts dedicated to:

- **Long term vision and overall strategy** - *specifying the overall CO_2 emission target foreseen, the priority areas of action, the attribution of staff and financial capacities;*
- **Key results of the Baseline Emission Inventory** - *indicating the current level of energy consumption and identifying the principal sources of CO_2 emissions;*
- **Key elements of the Sustainable Energy Action Plan** - *defining the short and long term measures set up to put the overall strategy into action, together with time frames, assigned responsibilities and allocated budgets*.

The SEAP template should help the Covenant signatories to structure their actions and measures, and to follow up implementation. At the same time the template is a valuable tool for collecting key information from the SEAPs, and thus allowing exchange of experience. Highlights of the collected information will be shown on-line at the Covenant of Mayors website.

In addition to this instruction document, overall guidelines are being developed, providing more detailed information and recommendations on how to develop and prepare the Baseline Emission Inventory and the SEAP.

OVERALL STRATEGY

1. Overall CO_2 reduction target

What is the overall CO_2 reduction target of your local authority? Please note that your CO_2 reduction target should be at least – 20% by 2020 as required by the Covenant of Mayors.

In principle, the reduction target should be set as an “absolute” value (percentage of quantity of CO_2 emissions calculated for the baseline year). Alternatively, the target may be set "per capita". In this case, the emissions of the baseline year are divided by the number of inhabitants in the same year, and the percentage emission reduction target is calculated on that basis. Please tick the box of the option chosen.

2. Long-term vision of your local authority (maximum 1500 characters)

Please define here the long-term vision of your local authority until 2020 (at least) and mention:

a) ***Priority areas of action.*** In which sectors you expect to make the largest CO_2 reductions? Which are your key actions?
b) Which are the ***main trends*** in terms or CO_2-Emissions in your territory/local authority? And where do the biggest challenges lie?

3. Organisational and financial aspects (maximum 500 characters per cell)

a) ***Coordination and organisational structures created/assigned***: Please define the specific structures your local authority has created to implement the Covenant of Mayors initiative.
b) ***Staff capacity allocated:*** Please define how many people are working (in corresponding full time jobs) with the preparation and implementation of your Sustainable Energy Action Plan.
c) ***Involvement of stakeholders and citizens:*** The Covenant of Mayors signatories commit to mobilising the civil society within their area to participate in developing the action plan. Please specify: How did you engage the citizens and the different stakeholder groups in the preparation of the action plan? How do you plan to involve them during implementation?
d) ***Overall estimated budget:*** Please specify here your overall budget related to both the development and implementation of your overall strategy (including the time frame of the estimated budget).
e) ***Foreseen financing sources for the investments within your action plan:*** Please indicate the main (re)allocations in the municipal budget and from which external sources (e.g. European, national or regional funding schemes, sponsors, etc.) you are expecting to get funding for the implementation of the key actions within your action plan.
f) ***Planned measures for monitoring and follow up:*** Please specify, how the local authority is planning to organise the monitoring and evaluation of the action plan. Please also note that the signatories of the Covenant of Mayors will have to deliver an implementation report every second year. The first report is due two years after the submission of the Sustainable Energy Action Plan.

BASELINE EMISSION INVENTORY

The most important precondition for the establishment of the Sustainable Energy Action Plan is the Baseline Emission Inventory. The template is designed to summarise the key data of your inventory (it is not designed as a calculation tool for your CO_2 emissions). Within the framework of the Covenant of Mayors, the Baseline Emissions Inventory -as well as the SEAP- should be **based on final energy consumption**.

1. Baseline year

The recommended baseline year of the inventory is 1990. If the local authority does not have data to compile an inventory for 1990, then it should choose the closest year to 1990 for which the most comprehensive and reliable data can be collected.

2. Choice of emission factors

The Baseline Emission Inventory should be based on activity data (the final energy consumption that occurs within the territory of the local authority) and emission factors, which quantify the emissions per unit of activity. Two different approaches may be followed when selecting the emission factors:

1. Using "**Standard" emission factors in line with the IPCC principles**, which cover all the CO_2 emissions that occur due to energy consumption within the territory of the local authority, either directly due to fuel combustion within the local authority or indirectly via fuel combustion associated with electricity and heat/cold usage within their area. This approach is based on the carbon content of each fuel, like in national greenhouse gas inventories in the context of the UNFCCC and the Kyoto protocol. In this approach, the CO_2 emissions from the use of renewable energy as well as emissions of certified green electricity are considered to be zero. Also the CO_2 is the most important greenhouse gas, and the share of CH4 and N_2O emissions do not need to be calculated. Therefore, the local authority that decides to use this approach is asked to report its CO_2emissions (in t). However, also other greenhouse gases can be included in the baseline inventory, and in this case the emissions are reported as CO_2 equivalents.
2. Using **LCA (Life Cycle Assessment) factors**, which take into consideration the overall life cycle of the energy carrier. This approach includes not only the emissions of the final combustion, but also all emissions of the supply chain (such as transport losses, refinery emissions or energy conversion losses) that take place outside the territory. In this approach, the CO_2 emissions from the use of renewable energy as well as emissions of certified green electricity are higher than zero. In the case of this approach, other greenhouse gases than CO_2 can play an important role. Therefore, the local authority that decides to use LCA approach can report emissions as CO_2 equivalent. However, if in the methodology/tool used only counts CO_2 emissions, then emissions can be reported as CO_2 (in t).

Please tick the corresponding box to the emission factor approach you have chosen (IPCC / LCA).
Please also choose whether the emissions are reported in CO_2 or CO_2 equivalent emissions.

3. Key results of the Baseline Emission Inventory

This section is divided into four tables:

A. Final energy consumption
B. CO_2- or CO_2-equivalent emissions
C. Local electricity production and corresponding CO_2 or CO_2-equivalent emissions
D. Local district heating/cooling, CHP and corresponding CO_2- and CO_2-equivalent emissions

Table A. Final energy consumption
This table summarizes the essential data of your final energy consumption, i.e. the amount of electricity, heat/cold, fossil fuels and renewable energy consumed by the final end-users.

Category
This column refers to the sectors that consume energy / emit CO_2. The sectors are split into two main categories "Buildings, equipment/facilities and industries" and "Transport" and eight subcategories. Filling the data for these categories is mandatory. In detail:

1° Buildings, equipment/facilities and industry
This category covers all buildings, services, facilities and industrial premises. If possible, the data should be split into the following five sub-categories:

- "Municipal buildings and equipment/facilities: the term "equipment/facilities" covers energy consuming entities that are not buildings (e.g. water treatment units, recycling centres and composting plants). Residential buildings owned by the local authority or an affiliated organisation have to be included in the subcategory "Residential buildings"
- "Tertiary (non municipal) buildings, equipment/facilities" refers to all buildings and facilities of the tertiary sector (services sector) that are not owned or managed by the local authority (e.g. offices of private companies, banks, SME's, commercial and retail activities, hospitals etc.)
- "Residential buildings": energy consumption in buildings that are primarily used as residential buildings

- "Municipal public lighting": public lighting owned or operated by the local authority. Any non-municipal public lighting should be referred in the category "Tertiary (non municipal) buildings, equipment/facilities".
- "Industry": Generally, local authorities only have a limited influence on industry. Therefore, the following rules apply for the Covenant signatories:
    - The local authority may decide to include this sector in their SEAP (not compulsory).
    - The energy and CO_2 data related to this sector should be reported only if the sector is included in the SEAP.
    - Plants covered by the ETS (European Emission Trading Scheme) should be excluded, unless such plants were included in previous energy plans and CO_2 emission inventories of the local authority.
    - If industrial emissions are included in the Baseline Emission Inventory, and a major industrial company/plant closes down between the base year and the target year 2020, its emissions should be excluded from the Inventory. CO_2 emission reduction resulting from industry relocation cannot contribute to the overall CO_2 reduction target.
    - Similarly, new industrial companies/plants constructed in the territory of your local authority between the baseline year and 2020, do not need to be included into the inventories of future years.

2° Transport

This category covers road and rail transport. The energy consumption data should be based on actual consumption data (municipal fleet or public transport) or on estimates based on the mileage on the street network of the local authority.

If possible, the data should be split into the following three sub-categories:

- "Municipal fleet": Vehicles owned and used by the local authority/administration
- "Public transport": Bus, tramway, metro, urban rail transportation
- "Private and commercial transport": This category covers all road and rail transport in the territory of your local authority not specified above (e.g. cars and freight traffic)

Final energy consumption in MWh

These columns refer to the different energy commodities that are consumed by the end-users within the territory of your local authority and should be completed per category, if possible per sub-category:

- "Electricity" refers to the total electricity consumed by end-users, whatever the production source is. If the local authority is purchasing certified green electricity please complete also the cell below the table as well as the corresponding emission factor is the LCA factors are used. *Certified green electricity"* means electricity produced from renewable energy sources covered by Guarantee of origins as per article 5 of directive 2001/77/CE, article 15 of directive 2009/28/EC and article 3 (6) of directive 2003/54/EC.
- "Heat/cold" refers to heating/cooling that is supplied as a commodity to end-users within the territory (for example from district heating/cooling system, a CHP plant or waste heat recovery). Heating produced by end-users for their own use should not be included here, but under the columns of the energy carriers that produce the heat. With the exception of CHP heat: as a CHP unit also generates electricity, it is preferable to included it under production (tables C and D), especially if it concerns large units.
- "Fossil fuels" cover all fossil fuels consumed as a commodity by final end-users. It includes all fossil fuels bought by end-users for space heating, sanitary water heating, or cooking purposes. It also includes fuels consumed for transportation purposes, or as an input in industrial combustion processes[1].
- "Renewable energies" All plant oil, biofuel, other biomass (e.g wood), solar thermal and geothermal consumed as a commodity by final end-users.

[1] Only if the SEAP includes actions in this sector. However, energy use of industry involved in EU ETS is excluded.

Note: *Peat* is excluded. If peat is consumed within the local authority, it should be accounted for in the "other fossil fuel" column L (even if it is not strictly speaking a fossil fuel).

Table B: CO_2- or CO_2-equivalent emissions
This table summarises the quantity of greenhouse gases emitted as a result of the energy consumption within the local authority.

Category
This column refers to the sectors emitting greenhouse gasses. They are the same as those listed in table A. However a third sector has been added:

3° other emission sources
In addition to emission sources related to energy consumption specified in table A, your local authority may voluntarily include other greenhouse gas emission sources in the inventory, if the SEAP includes actions to mitigate these emissions. For instance, the local authority can choose to include CH_4 emissions from landfills, if one of the SEAP measures is to begin landfill gas recovery at the landfill. To facilitate the data collection waste management and waste water management have been pre-defined as possible sectors. Please note that collecting data for these sectors is voluntary. Please indicate only total emissions in CO_2 equivalents.

CO_2-emissions in t CO_2 or t CO_2-eq

Compared to the table of final energy consumption, the greenhouse gas emissions are reported in a similar manner. They have to be calculated for each energy source by multiplying the final energy consumption by the corresponding emission factors.

If you have to include several “energy carriers” in the same column of table B (e.g. different “types” of electricity; or heat *and* cold; or several fossil fuels under column "other fossil fuels"), it is preferable to make separate calculations with the different energy carriers and their respective emission factors, and to report the total emissions in the table, with the corresponding average emission factor.

Emission factors in t/MWh

The IPCC provides **default emission factors** available from the 2006 IPCC Guidelines[2]. The default emission factors could be replaced by **country specific emission factors** which take account of country specific data. The Covenant signatories can also develop **own emission factors** based on the detailed properties of the fuels used within their territory. In addition **LCA factors**, which take into account the life cycle of the energy carrier, can be used.

Please complete for each energy carrier the emission factor you have used.
In addition, please indicate the chosen value in the cell "CO2 emission factor for electricity not produced locally [t/MWh]" below table B.

The **local emission factor for electricity (EFE)** should reflect the energy mix used to produce electricity. If the local authority has decided to include measures related to local electricity production in the SEAP, then the EFE has to be calculated to fit the local situation. For this purpose, table C has to be filled (see below). If the local authority purchases certified green electricity, then the EFE may also be recalculated to reflect the associated CO2 emission gains.

In a similar manner **the local emission factor for heating/cooling** should reflect the energy mix used to produce the heat/cold that is referred in table A.

[2] Default emission factors are available in the 2006 IPCC Guidelines Volume 2, Chapter 2, Table 2.2. (page 16).

The **guidelines for the Baseline Emission Inventory** will provide tables with all relevant emission factors together with the formulas for calculating local emission factors for electricity and heating/cooling based on the data provided in tables C and D (see below).

Table C. Local electricity production and corresponding CO_2 or CO_2-equivalent emissions

Although reducing the final energy consumption is considered as a priority in the context of the Covenant of Mayors, reductions of the greenhouse gas emissions in the supply side can also be accounted for, for example when the local authority acts as promoter of renewable installations, or carries out energy efficiency measures in local district heating plants.

The local authority can decide whether or not to include local electricity production in the inventory and SEAP. If your SEAP includes actions related to electricity production within the territory of your local authority (e.g. development of PVs, wind power, hydroelectric power etc.) or improvement of efficiency in local power generation, please fill in this table. You should then only include the "local" plants/units, i.e. plants that meet the following criteria:

a) Plants/units are not included in the European Emissions Trading Scheme (ETS),
b) Plants/units are below or equal to 20MW as thermal energy input in the case of fuel combustion plants, or output for renewable (20 MW corresponds to the EU ETS threshold for combustion installations).

However, if the local authority plans specific actions with own utilities (or has incorporated "ETS plants" in past action plans) or plans to develop and finance large renewable installations like wind farms, such projects may be incorporated, as long as the priority remains on the demand side (final energy consumption reductions).

All plants that respect the above rules should be listed, with corresponding quantity of locally generated electricity (in MWh). For combustion plants, the energy carrier inputs have to be specified. For convenience, similar production units may be grouped (for example PV installations or cogeneration units). Please report the CO_2 or CO_2 equivalent emissions and specify the corresponding emission factors.

Table D: Local district heating/cooling, CHP and corresponding CO_2- and CO_2-equivalent emissions

This table has to be filled in only if heat/cold (e.g. from a district heating boiler or a CHP plant) is supplied as a commodity to end-users within the territory of the local authority. The purpose of this table is to calculate the CO_2 emission related to heat/cold production.

All plants that generate heat or cold that is sold/distributed as a commodity to end users within the territory of the local authority (in general via a district heating system) should be considered and listed with the generated quantity of heat/cold, the energy inputs, and corresponding CO_2- or CO_2 equivalent emissions and emission factors. For convenience, similar production units may be grouped.

Please note that energy consumption and CO2 emissions related to heat and cold locally produced by end-users for their own usage are already covered by tables A and B (columns for fossil fuel and renewable energy consumption).In principle, the total amount of heat/cold produced referenced in table D should be equal (or very close) to the quantity of heat/cold consumed and reported in table A, column "Heat/cold".

Other emission inventories

If your local authority has made several CO_2 emission inventories, the results of these inventories can be included in the template under this section.

SUSTAINABLE ENERGY ACTION PLAN

1. Title of your Sustainable Energy Action Plan

Please specify the:

- Title of your action plan (for example: “Energy plan”, “Climate plan”, “My city in 2020”),
- Authority approving your plan,
- Date of its formal approval [day/month/year].

2. Key elements of your Sustainable Energy Action Plan

This section gathers the basic information about the key actions of your Sustainable Energy Action Plan.

Sectors & fields of action

Energy efficiency measures, renewable energy projects and other energy-related actions can be introduced in various activity areas of local and regional authorities. The Covenant of Mayors concerns the action at local level within the competence of the local authorities. Hence, Covenant signatories will be expected to take action in several or all of their possible roles:

- Consumer and service provider;
- Planner, developer and regulator;
- Advisor, motivator and a model;
- Producer and supplier.

Therefore the proposed SEAP template is twofold; first reflecting sectors that are taken into account within your Baseline Emission Inventory (i.e. buildings, equipment/facilities, industries and transport, local electricity production and local district/heating/cooling, CHPs). Second it should also be based on those areas where the local authority has a specific role to play, such as:

- “Land use planning” (planner),
- “Public procurement of products and services“ (consumer) or
- “Working with the citizens and stakeholders” (advisor, motivator).

However, local authorities are free to choose their key fields of action. Therefore, action in all the mentioned areas is strongly recommended, but not compulsory.

This table is designed to help local authorities to structure their main actions and measures. In case a sector/measure is not covered by this structure you can add it under “other” (e.g. in case landfill gas recovery is one of the SEAP measures).

When entering details of your actions and measures, please note that the information needs to be saved after each sector, otherwise your data will be lost.

Key actions/measures

The content of your action plan should be summarized under this section**.** The measures should be linked to the fields of action (such as municipal buildings, public transport, PV installations, training and education etc.). Please include a short description of each measure. You can insert more lines, in case you want to list several key actions under the same field of action.

We expect you to list the short term actions which have been approved by the local authority and for which a budget has been allocated (time horizon 3-5 years) together with the more strategic long term actions which you intent to implement by 2020.

Responsible department, person or company

Within the action plan, responsibilities will be assigned to the different departments of your local authority. Under this section please indicate the department responsible for implementing each measure. These might be also third Parties, such as utilities/ESCOs or local energy agencies.

Implementation

This section indicates the start and the end time of each action / measure within your action plan. Please indicate the start and end year in order to differentiate the short/medium term actions and the long term measures. It is important to set up short term actions reducing the CO_2 emissions right away, and reflect through long term measures until 2020 when the -20 % CO_2 target needs to be attained.

Estimated costs per action / measure

Please give an indication of the cost for the implication of at least each short/medium term measure / action. This information will show what actions / measures are most costly, and also help evaluating the costs of the key measures in different countries. Please indicate the costs in euros.

Expected energy saving per measure

Please provide information of the expected energy saving in MWh for each measure.

Expected renewable energy production per measure

Please provide information if the planned measure increases the share of locally produced renewable energy (in MWh).

Expected CO_2- or CO_2-equivalent emission reduction per measure

Please provide information of the expected CO_2 emission or CO_2 equivalent reduction in tons per year (t/a) of each of your key measures.

Energy saving target per sector

Please specify the energy saving target per field of action, (e.g. the energy savings in public buildings and for buildings equipment). Please give one figure in MWh per sector. This figure should represent the energy savings you are targeting for the year 2020 compared to your baseline year.

It will be certainly difficult to set quantified energy saving for some of the sectors such as the “land use planning” or “working with stakeholders”. However, if there are any estimates available, please also indicate these in the table. This will help to identify the key areas where CO_2 emission reductions are expected.

Local renewable energy production target per sector

Please specify the local renewable energy production target (in MWh) per sector when applicable. This figure should estimate the amount of locally produced renewable energy in 2020 compared to your baseline year.

Please include here only the energy locally produced/generated via renewable sources (e.g. PV installations). Please also note that new installations reduce CO_2 emissions only if they replace energy currently imported and used within the territory of the local authority.

CO_2 - or CO_2 equivalent reduction target per sector

Please specify the CO_2 - or CO_2 equivalent reduction target per sector as for the energy savings. Figures have to be given in tones (t). Please note that figures for several sectors are mandatory (green cells). If no reduction is foreseen within the corresponding sectors, please insert zero.