INSTRUCTIONS:

How to fill in the Sustainable Energy Action Plan template?

1. Title of the sustainable energy action plan

Please specify the title of your action plan (energy plan, climate plan etc.)

2. Time frame of the action plan

Please define the time frame of the actions. When does your action plan - and its measures - start and when do they end? Your action plan is expected to cover actions until 2020. If the time frame of your action plan is longer (for example until 2030), please indicate expected intermediary results by 2020 throughout the template.

3. Overall CO2 reduction target

What is the overall CO2 reduction target of your local authority? Please take into account that the reduction target should be at least – 20% by 2020. However, local authorities might have more ambitious and long term targets.

4. Vision of the local authority

Please include here:

a) Priority areas of action. In which sectors the local authority expects to make the largest CO2 reductions? Which are the key areas of action where most actions will be taken?
b) Which are the main trends in terms or CO2 emissions in your local authority? And where do the biggest challenges lie?

5. Organisational and financial aspects

a) ***Coordination and organisational structures created/assigned***. Please define whether your local authority has created specific structures to implement the Covenant of Mayors initiative? Or whether the task has been assigned to a specific department within your local authority?
b) ***Staff capacity allocated.*** Please define how many people are working (full time) with the preparation and implementation of your sustainable energy action plan?
c) ***Involvement of stakeholders and citizens.*** The Covenant of Mayors signatories commit to mobilize the civil society within their area to take part in developing of their action plan. Please specify how did you engage the citizens and the different stakeholder groups in preparation of the action plan? How do you plan to involve them during implementation?
d) ***Overall budget of the sustainable energy action plan.*** Please specify here the overall budget of the action plan; related to both its development and implementation. Please also note that the point 6 (Key elements of the sustainable energy action plan) asks expected costs of your key measures. These two areas show the magnitude of financing needed to put in place your key actions.
e) ***Foreseen financing sources for the investments within your action plan***. Please indicate from which sources you are expecting to get funding for implementation of the key actions within your action plan. These could be for example European or national funding schemes.
f) ***Planned measures for monitoring and follow up.*** Please specify, how the local authority is planning to organize the monitoring of the action plan? Please also note that he Covenant of Mayors initiative asks its signatories to deliver an implementation report every second year.

6. Key results of the Baseline Emissions Inventory

The recommended base year of the inventory is 1990. If the local authority does not have data to compile an inventory for 1990, then a later base year can be chosen. In this case the base year is the year for which the Baseline Emission Inventory is compiled.

If the base year is 1990 and the local authority has carried out several CO2 inventories, an extra table asking the data from the latest inventory will appear.

This section is divided into 3 main tables:

A. Final energy consumption and corresponding CO2 emissions
Filling this table is mandatory as it summarizes the essential data of the CO2 Baseline Emissions Inventory.

B. Local electricity production
This table summarizes the local electricity production. The table has to be filled in only if the SEAP includes actions related to local electricity production (development of PVs, wind power, CHP, improvement of efficiency in local power generation).

C. Local heating / cooling generation
This table has to be filled in only if production of heat occurs within the city, and the heat is supplied as a commodity to end-users (for instance district heating or CHP plant.

Table A. Final energy consumption and corresponding CO2 emissions

The baseline inventory will be essentially based on final energy consumption, i.e. what is consumed by the final end-users within the boundaries of the local authority. Reducing final energy consumption should be considered as a priority in the sustainable energy action plan.

As we concentrate on final energy consumption, any energy that is used for specific energy generation or transformation activities (for example in a power plant) should be excluded here.

Categories of end-users (column 1)

This column refers to the sectors that consume energy / emit CO2 within the local authority. The sectors are split into 3 main categories:

1° Buildings, facilities and industry

The energy and CO2 data for this category is mandatory. It covers all buildings, services, facilities and industrial premises within the municipality. However, energy use of industries that participate in the EU Emissions Trading Scheme (ETS) should be excluded, and are thus not part of the Baseline Emission Inventory.

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

- "Municipal buildings and facilities"
- "Municipal public lighting" (note: any non-municipal public lighting should be referred in the category "Public and private buildings and facilities for services (excluding Municipal)").
- the term "Facilities" covers energy consuming entities that are not buildings (e.g. water treatment units)
- "Residential buildings" exclude those owned by the municipality.
- "Private and public buildings and facilities for services" refer to all buildings and facilities of the services sector (tertiary sector) that are not owned or managed by the municipality (for example offices of private companies, banks, commercial and retail activities, etc.)
- "Industry": this sector is not a key target of the Covenant of Mayors, so the municipality may choose to include it or not in the inventory. But if the SEAP includes actions related to this sector, then it should be included in the inventory so that the results can be monitored. Note: In any case, all plants covered by the

ETS (European CO2 Emission Trading Scheme) should be excluded. Furthermore, if an industrial plant is closed down between the Base Year and target year 2020, is should be excluded from the Baseline Emission Inventory. Similarly, if new industrial plants are constructed in the city between the Base Year and 2020, the city does not need to include them into the inventories of future years.

2° Transport

The energy and CO2 data for this category is mandatory. It covers road and rail transport in the municipality. Thus other transport modes, such as off-road transportation (including machinery), aviation, maritime and fluvial transport are excluded. 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.

3° other emission sources

This category is not mandatory. The local authority can include here also emissions from other sectors inside the city if the SEAP includes measures in those sectors. For instance, the city can choose to include CH4 emissions from landfills, if one of the SEAP measures is to begin landfill gas recovery at the landfill. In that case, only total emissions, converted to CO2 equivalents, are included in this table. The CO2 equivalents are calculated using a global Warming Potential of 21 for CH4 and 310 for N2O. In other words, if emissions are 3 tons of CH4, they are 3*21=63 tons of CO2 equivalents.

Final energy consumption (columns 2-9)

These columns refer to the different energy commodities that are consumed by end-users within the local authority.

"Electricity" (column 2) refers to all electricity consumed by end-users, whatever the production source is.

"Heat" (column 3) refers to the heat that is supplied as a commodity to end-users within the territory (for example from district heating, or a CHP plant). Heat produced by end-users for their own usage should not be referred here as "heat", but should be referred in the other columns according to the energy commodity they consume to produce the heat. One exception to this rule is CHP heat: as a CHP unit also generates electricity, it is preferable to included it in the "production" tables, especially if it concerns large units.

"Fossil fuels" (columns 4-6) cover all fossil fuels consumed as a commodity by final end-users. It includes all fossil fuels (such as natural gas, coal or fuel oil) 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].

"Biomass" (column 7): All biomass consumed as a commodity by final end-users: a) biomass bought or collected by end-users for space heating, sanitary water heating, or cooking purposes; and b) biofuel consumed for transportation purposes.

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

"Heat of renewable origin" (other than biomass) (column 8) produced by end-users within the municipality and consumed by themselves.

CO2 emissions (column 10)

This column refers to the quantity of CO2 that is emitted by the different categories of end-users within the local authority, as a result of their energy consumption (or of other activities, for the category "other emission sources").

[1] If the municipality wishes to target this sector for measures of CO2 emissions reduction, and to the exclusion of the ETS sector

As the CO2 emissions that occur as a result of biomass combustion[2] and renewable heat production are conventionally equal to zero, the total CO2 emissions will be the sum of the direct emissions related to the combustion of fossil fuel within the municipality, plus the emissions that derive from the consumption of heat and electricity.

For electricity, a CO2 emission factor has to be calculated, to establish the corresponding CO2 emissions. This emission factor has to take into consideration:

a) indirect CO2 emissions of imported electricity, and
b) direct CO2 emissions of electricity generation that occurs within the boundaries of the municipality (if applicable), while applying certain rules (see Additional information).

If heat is consumed by end-users as a commodity, then a similar approach is used to derive the corresponding CO2 emissions.

These principles and rules allow rewarding the increase in local renewable energy production, or improvements of efficiency in the local energy generation, whilst still keeping the main focus on final energy (demand side).

Additional information

Municipal green electricity purchases

If the municipality buys electricity that is guaranteed of renewable origin, you may indicate here the amount of "green energy" that has been purchased. This will improve the overall CO2 emission factor for electricity consumption within the municipality.

Emissions due to electricity imports

This is calculated as: (final consumption of electricity – locally generated electricity [if any – see table B] - Municipal green electricity purchases) * Emission factor of imported electricity

Emission factor of imported electricity

Indicate here the value of the indirect CO2 emission factor for imported electricity. The cities can choose to use either national or European emission factors.

B. Local electricity production and corresponding CO2 emissions

Although reducing the final energy consumption is considered as a priority in the context of the Covenant of Mayors, reductions of the CO2 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.

If the city decides to include local electricity production, all the plants/units that meet the following criteria should be included:

a) Generation units that are meant to be "local"
b) Plants/units not included in the European Emissions Trading Scheme (ETS); and are
c) Plants/units below or equal to 20MW as thermal energy input for fuel combustion plants, or 20MW as output for renewable (20 MW corresponds to the EU ETS threshold for combustion installations).

However for local authorities who own their own utilities or who plan 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).

[2] Biomass combustion releases CO2, but, as biomass can be considered as a renewable resource, these emissions are generally not accounted in the CO2 emission inventories. However, biomass is renewable only if harvested in a sustainable manner. Therefore, great care should be taken to make sure the biomass used within the municipality is of sustainable origin. In any case, the sustainability criteria set in directive 2009/28/EC on the promotion of the use of energy from renewable sources should be met.

All plants that respect the above rule should be listed, with corresponding quantity of locally generated electricity, with the energy inputs, and corresponding CO2 emissions. For convenience, similar production units may be grouped (for example PVs and CHPs).

The difference between final consumption and what is locally generated is considered as "imported electricity"[3].

As stated above, for imported electricity, indirect CO2 emissions are calculated using the national or European emission factors.[4]

The calculation formula is: Emission coefficient for electricity = (emissions due to local generation of electricity + indirect emissions due to imports) / Total electricity final consumption.

If the city is a net exporter of electricity then the calculation formula is: Emission coefficient for electricity = (emissions due to local generation of electricity * Total electricity final consumption) / Total local energy generation.

C. Local heating / cooling generation and corresponding CO2 emissions

All units situated within the municipality and generate heat for end-users should be considered. All plants should be listed here, with the corresponding quantity of locally generated heat, with the energy inputs, and corresponding CO2 emissions. For convenience, similar production units may be grouped (CHPs).

For imported heat (if any), indirect CO2 emissions are calculated using data provided by the utility(ies) / company(ies) delivering the heat.

The calculation formula is: Emission coefficient for heat = (emissions due to local generation of heat + indirect emissions due to imports) / Total heat final consumption

If the city is a net exporter of heat then the calculation formula is: Emission coefficient for heat = (emissions due to local generation of heat * Total heat final consumption) / Total local heat generation.

7. Key elements of the Sustainable Energy Action Plan

This section gathers information about the key actions of the sustainable energy action plan. Please include here the priority actions and measures you are going to put in place. The table is designed to help local governments to structure their actions and measures based on a number of sectors.

The table identifies a set of ***sectors (column 1)*** where local governments are expected to take action. However, the local authorities are free to choose their key areas of action. These might also vary based on the local competences. Therefore action in all the mentioned areas is recommended, but not compulsory.

The sectors reflect on the other hand the fields of action that are calculated within the Baseline Emission Inventory (buildings, facilities, industry, and transport). However, the table also includes areas where the local governments can influence the long term energy consumption (land use planning), encourage markets for energy efficient products and services (public procurement) as well as changes in consumption patterns (working with citizens).

The sub-sectors, for example municipal fleet, private and commercial transport, and public transport under heading transportation are there to help setting up measures (the list is not exhaustive).

Energy saving target; and the CO2 reduction target per sector (columns 2-3): Please specify the energy saving target and the CO2 reduction target per sector. This will identify the key areas where CO2 emission reductions are expected. For some of the sectors such as the land use planning and working with stakeholders, it might be difficult

[3] This is an approximation; distribution losses, energy consumption of the energy branch can be neglected

[4] The emissions are calculated based on fuel-specific emission factors. The local authority can choose to use either internationally accepted standards (IPCC) or the emission factors used by the country in the reporting to the UNFCCC.

to set quantified energy saving and CO2 reduction targets. However, if there are any estimates available, please also indicate these in the table.

In case you have detailed information of the expected CO2 emission reduction of each of the key measures, you can indicate this data in the last column (***CO2 reduction target per measure***). Filling in this column is not compulsory.

The content of your action plan should be summarized under the ***Key measures (column 4).*** The measures should be linked to the sectors (building, transport etc). Please include a short description of each key measure.

Within the action plan responsibilities will be assigned to the different departments of the local authority. Under the ***Responsible department (column 5)***, please indicate the department responsible for implementing each measures. These might be also 3rd parties, such as utilities or local energy agencies.

Implementation (column 6) should indicate the start and the end time of the action / measure. This will highlight which are the short term, and which are the long term measures. It is important to set up short term actions reducing the CO2 emissions right away, and reflect until the 2020 when the -20 % less CO2 target needs to be attained.

Under point 5 of the template, the local authorities are asked to identify the overall budget of the sustainable energy action plan and its implementation. The ***column 7, estimated cost of the measures***, asks details of the cost implications of different measures / actions. This information will show what actions / measures are most costly, and also help us to evaluate the costs of the key measures in different countries.