Covenant of Mayors
Committed to local sustainable energy

Reporting Guidelines on Sustainable Energy Action Plan and Monitoring

Version 1.0 (May 2014)

Developed by Covenant of Mayors Office & Joint Research Centre of the European Commission
Published in 2014

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INTRODUCTION

By joining the Covenant of Mayors, local authorities have shown a strong political commitment to curb greenhouse gas (GHG) emissions on their territory **by at least 20% by 2020**, thus contributing to the energy and climate objectives of the European Union (EU).

Europe's unprecedented policy framework engaging directly local authorities in climate mitigation has become a real movement today. The Covenant of Mayors helps European local authorities to translate their GHG emissions reduction ambitions into reality, while taking into account the immense diversity on the ground.

Indeed the Covenant provides signatories with a **harmonised data compilation and reporting framework which is unique in Europe**, and assisting them to follow a systemic energy planning and monitoring at the local level. Developed together with the European Commission's Joint Research Centre, based on the experience of practicing municipalities and regions with the intention to align with most common local methodologies, the Sustainable Energy Action Plan (SEAP) and Monitoring templates constitute the standard reporting framework for Covenant Signatories. The **SEAP template** forms the skeleton of the individual SEAPs. It allows signatories to **collect and analyse data in a structured and systematic manner** and serves as a basis for good energy management. The **Monitoring template** focuses on **tracking progress** in SEAP implementation.

The Covenant also aims to **give recognition and high visibility** to single climate mitigation actions implemented by signatories as well as to **inspire, facilitate exchanges** and **self-assessment**.

Reporting data via the Covenant allows signatories to **demonstrate the EU wide impact of their actions on the ground** (see the 'Covenant indicators' factsheet as well as the '5-year Assessment of the Covenant of Mayors Initiative' report[1] available at www.eumayors.eu). Figures reported in the templates are 'translated' into **understandable and transparent graphical highlights** mainstreamed all over Europe (see the 'catalogue of SEAPs'). They give essential **feedback on local actions to European and national policy-makers.** This helps to show that the Covenant of Mayors initiative is not just gesture politics but a real, consolidated movement of voluntary committed local authorities, driving mitigation action and local sustainable development.

This guide has been developed by the Covenant of Mayors Office (CoMO) in collaboration with the Joint Research Centre (JRC) of the European Commission to assist signatories in understanding the Covenant reporting framework. It seeks to provide signatories with **step-by-step guidelines** throughout the reporting process. Step I is dedicated to guide signatories through the process of filling in the templates, namely Section I for the SEAP template and Section II for the monitoring template. Step II addresses the upload of documents such as the SEAP, while Step III is focused on the integrated checking system of the template and official submission. The guide is enriched with some **practical recommendations** and **concrete examples**.

[1] Joint Research Centre 2013, 'The Covenant of Mayors in Figures 5-Year Assessment', JRC reference reports.

THE COVENANT OF MAYORS PROCESS IN A NUTSHELL

Local authorities joining the Covenant of Mayors initiative commit to submit a **Sustainable Energy Action Plan (SEAP)** within the year following their adhesion. The SEAP contains a **Baseline Emission Inventory (BEI)** which provides an analysis of the current situation in terms of energy consumption and GHG emissions and outlines a comprehensive set of actions that local authorities plan to undertake in order to reach their GHG emissions reduction target. Signatories also commit to **monitor and report on their SEAP implementation** every two years after its submission (Figure 1).

Figure 1 – The Covenant of Mayors step-by-step process.

The Covenant of Mayors initiative adopts a **holistic approach** in climate change mitigation. Local authorities are guided to address all the different consumers in their territory (see Figure 2). Sectors such as the **residential, tertiary, municipal buildings and equipment/facilities and transport** are considered to be the **key sectors** in the Covenant of Mayors initiative. Local authorities focus on reducing the energy demand in their territory as well as on matching energy demand with supply by promoting the use of local energy resources. The methodology endorsed by the Covenant of Mayors relies on an **integrated and inclusive energy planning**, in which local stakeholders have an active role to play.

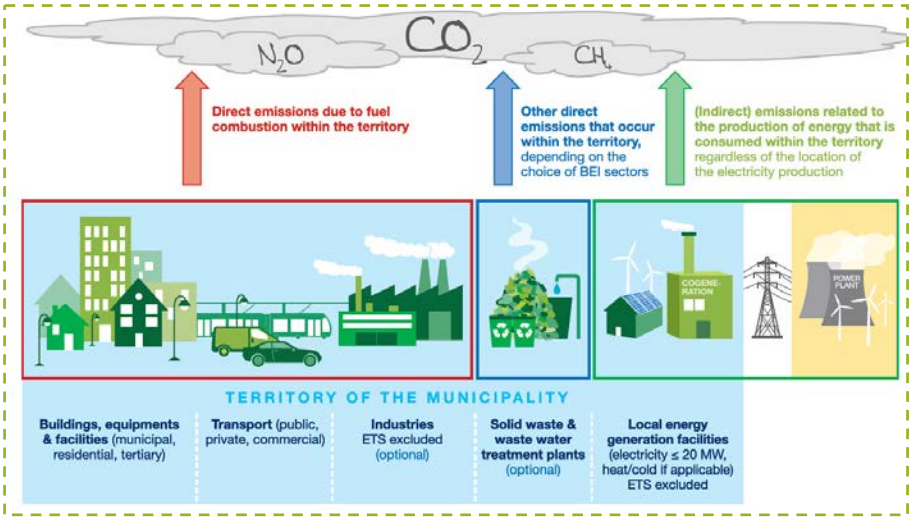


Figure 2 – The Covenant of Mayors scope.

In order to ensure that the submitted SEAPs are well in line with the Covenant principles (as defined in the SEAP Guidebook), the JRC carries out a **SEAP analysis**. This quality control contributes to guarantee the **credibility and reliability** of the whole Covenant of Mayors initiative. The JRC also provides a **feedback report** to signatories.

The SEAP analysis process focuses on the assessment of a set of **eligibility criteria**. Failure to meet these criteria will prevent SEAP acceptance by the JRC. The analysis focuses as well on the consistency of the data provided.

SEAP Eligibility Criteria – the minimum requirements:

- ✓ **The SEAP must be approved by the Municipal Council or equivalent body.**
- ✓ **The SEAP must clearly specify the CO_2 emissions reduction target by 2020 (20% as a minimum).**
- ✓ **The results of the Baseline Emission Inventory (BEI) must cover the key sectors of activity (at least three out four key sectors).**
- ✓ **The SEAP must include a comprehensive set of actions in the key sectors of activity (at least two out of four key sectors).**

GETTING STARTED

Reporting process overview

Figure 3 represents an overview of the reporting process to the Covenant of Mayors.

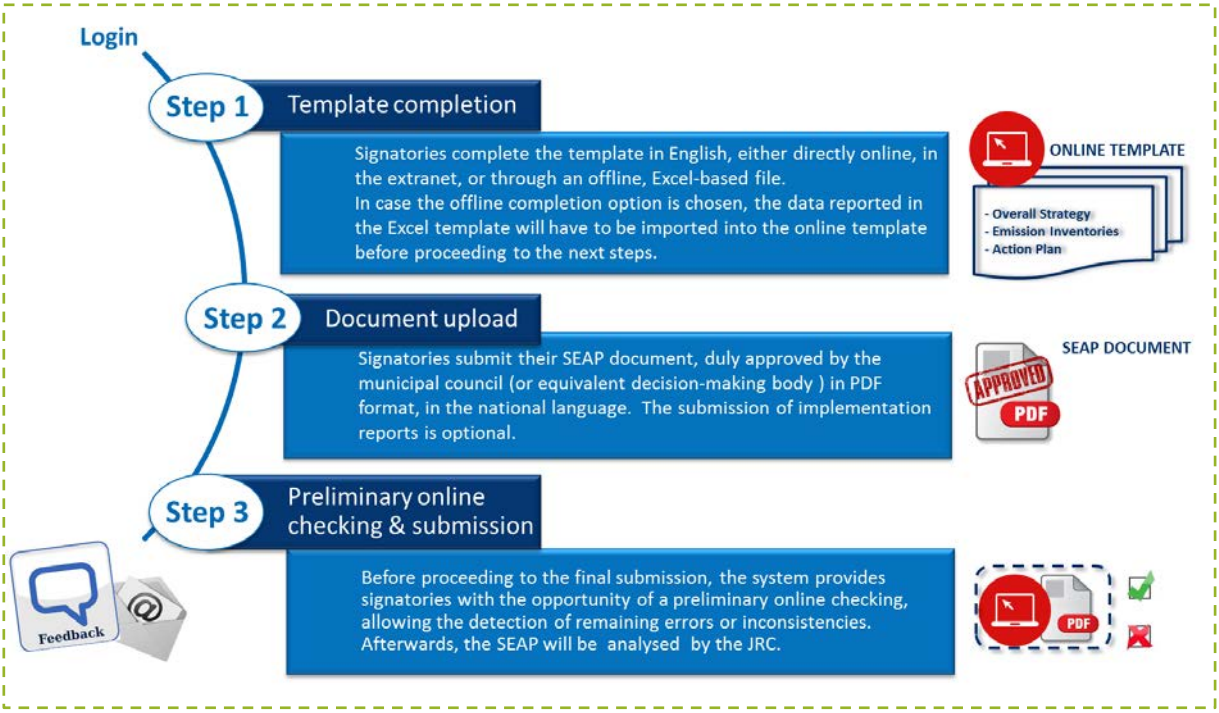


Figure 3 – Snapshot of the reporting process.

Access to 'My Covenant' – the Covenant extranet

The Covenant extranet is the online platform where Covenant Signatories report on their SEAP or monitoring results. It is built around simple steps that guide you through the SEAP or monitoring templates completion and submission process. First, **log in** to the Covenant extranet at www.eumayors.eu/sign-in_en.html with your personal identifiers you should have received at the registration stage.

Getting a user ID and password: In case you have lost (or not received) your password, you can retrieve it under the 'sign-in' webpage. As it is an automatic email, it may end up in the spam box – check it!
Providing access to your Covenant Territorial Coordinator (CTC): You can link your signatory profile with a CTC profile so that they can get an access to your profile. Under 'My account' > 'My local authority', scroll down, click 'add a new organisation' and select your CTC in the list.

Template content

The SEAP and monitoring templates are composed of three main parts to be completed as described in table 1.

Table 1 – Content of the SEAP and monitoring templates.

	SEAP	Monitoring
Part I. Overall Strategy	Dedicated to the overall CO_2 emissions reduction target, the vision, the attribution of staff and financial capacities and other organisational aspects.	Dedicated to any changes to the overall strategy as well as updated figures on the attribution of staff and financial capacities.
Part II. Emission Inventories	Dedicated to the amount of final energy consumption and associated CO_2 emissions by energy carrier and by sector in the base year.	Dedicated to the amount of final energy consumption and associated CO_2 emissions by energy carrier and by sector in the monitoring year – the main objective is to monitor the evolution of CO_2 emissions over time.
Part III. Sustainable Energy Action Plan	Dedicated to the list of key actions to put the overall strategy into action, together with time frames, assigned responsibilities and allocated budgets.	Dedicated to monitor the implementation status of the key actions.

After completing the template, highlights of the data provided are shown in a **graphical format** in the '**Synthesis report**' section. You can then decide which graphical representations you would like to display on your public profile on the Covenant of Mayors website.

Frequency of reporting

The **SEAP** must be submitted **within the year following the adhesion date,** i.e. the date **when the Municipal Council (or equivalent decision-making body) formally decided to join the Covenant of Mayors.** The SEAP submission consists of filling in the **SEAP template** in English and uploading the **SEAP document** approved by the Municipal Council in your own language or in English.

The **monitoring template** must be submitted in English **every two years after the SEAP submission date**. Optionally, you may decide to upload an implementation report. Having in mind that reporting every two years might put too much pressure on human or financial resources, you can decide to carry out the related emission inventories every four years instead of two. Hence, you would adopt **every two years** the **action reporting approach**, i.e. submit a monitoring template which does not include an emission inventory (Part II) and focused on the status of implementation of your actions (Part III). However, **every four years** you must carry out a **full reporting**, i.e. submit a monitoring template which includes all the three parts. Table 2 presents the contents of these two reporting approaches.

Table 2 – Description of the two reporting approaches for monitoring SEAP implementation.

Approach	When?	Part	What?
Action reporting	**At least every 2 years**	**Part I. Overall Strategy**	Specifies any changes to the overall strategy and provides updated figures on the attribution of staff and financial capacities.
		Part III. Sustainable Energy Action Plan	Outlines the status of implementation of your actions and their effects.
Full reporting	**At least every 4 years**	**Part I. Overall Strategy**	Specifies any changes to the overall strategy and provides updated figures on the attribution of staff and financial capacities.
		Part II. Emission Inventories	Provides a Monitoring Emission Inventory (MEI).
		Part III. Sustainable Energy Action Plan	Outlines the status of implementation of your actions and their effects.

Figure 4 illustrates the **minimum requirements** concerning the submission of monitoring templates. For instance, in the case of a signatory who has submitted its SEAP in 2013; he must carry out an 'Action reporting' in 2015 and a 'Full reporting' in 2017.

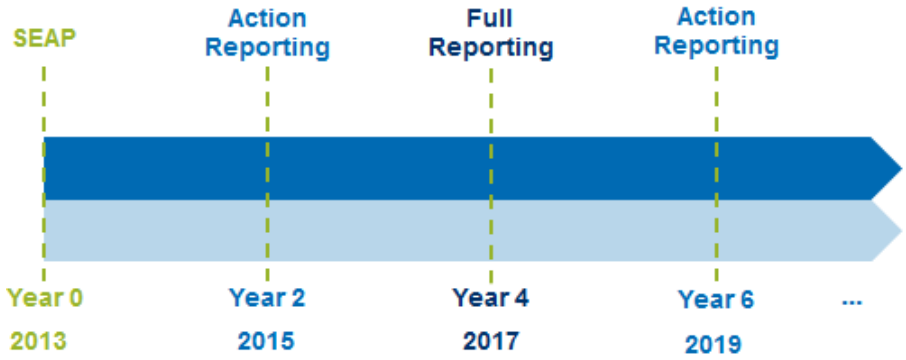


Figure 4 – Minimum requirements concerning the submission of monitoring templates.

Covenant Signatories (or Coordinators on behalf of their associated Signatories) can request an extension where circumstances, outside the local authority's control, delay the submission of the SEAP or Monitoring by the official deadline. To do so, they are invited to fill in the online delay request form, available under the Covenant extranet 'My Covenant'. Find out more in our FAQ webpage.

Template formats

The SEAP and Monitoring templates are available in two formats:

- **Online**

  The template is available in the Covenant extranet ('My Covenant'). As this is a web application, an internet connection is necessary. The application has been tested with most of the browsers including Internet Explorer, Chrome and Firefox.

- **Excel-based spreadsheet**[2]

  The template can be used in Microsoft Excel version 97-2003 and following versions (xls or xlsx, xlsm formats), in Windows environment, all macros, Microsoft XML components (min v3.0) and 'Visual Basics for Applications' (VBA) enabled.

  To change the macro settings, depending on your Office version, you will need to:

  - version 97-2003: from the Office button (upper left corner of the screen), select 'Excel settings', click on 'Trust Center' > 'Macro Settings' and click on 'Enable all macros' and select VBA source as trusted.
  - Other versions: from the Excel options (under File), click on 'Trust Center' > 'Trust Center Settings' > 'Macro Settings' and click on 'Enable all macros' and select VBA source as trusted.

Template legend

Colour codes are used in order to facilitate the completion of the template:

Optional input cells

Mandatory input cells

Output cells (computed by the system when the appropriate input fields have been completed first)

Pre-filled cells (used in the monitoring template)

Click on underlined terms in the excel file or slide the mouse over them in the online template to visualise their definition.

Navigation rules

You can start the SEAP submission process by clicking 'My action plan' in the blue menu at the top of any webpage. For the monitoring template, click 'My progress' in the same menu. First read the information displayed under the 'Get started' page (see Figure 5). When clicking on the button to fill in the template , either the SEAP or the monitoring template, you will be guided through the different parts of the template. Note that for the monitoring template you should choose in advance whether you would like to adopt an action reporting (without MEI) or a full reporting approach (Table 2).

[2] Excel format not released.

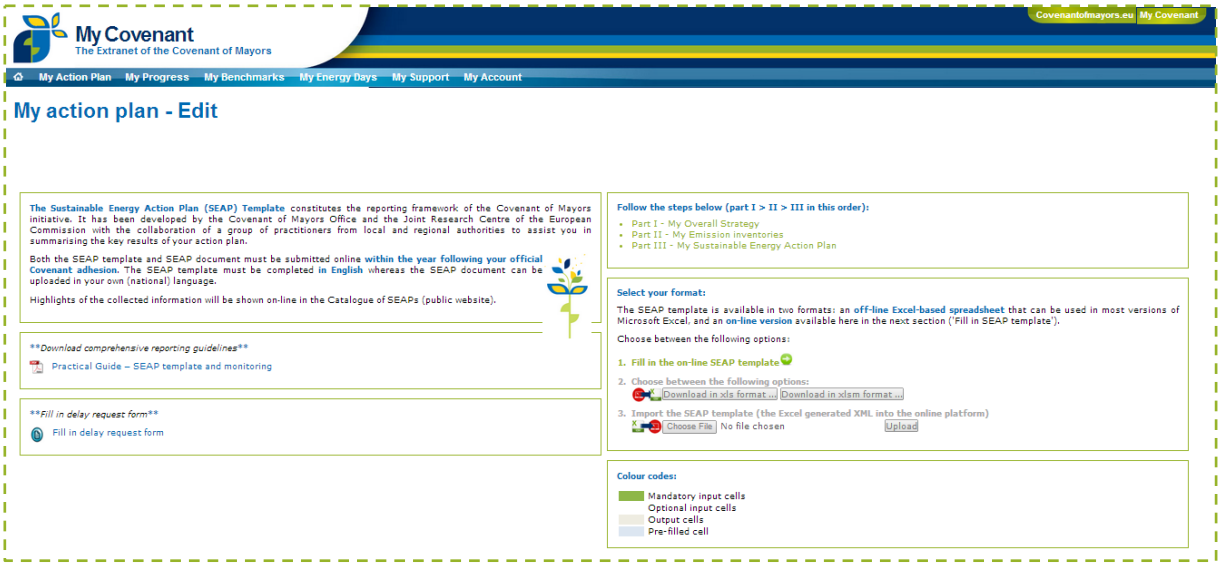


Figure 5 – 'Get started' page of the SEAP template.

Excel import feature

You can download the Excel-based template at any time. Likewise, this template can be imported into the extranet at any stage of the completion process. You can therefore either start filling in the Excel file and then import it online or directly fill in the template in the online platform. You can download or import the Excel from the 'Get started' page. If you have already started filling in the online form, the Excel spreadsheets will be pre-filled accordingly.

Note that the **finalisation and submission of the SEAP template is only possible through the extranet**. It means that the Excel template must first be imported before being submitted. Once your Excel template is imported, you will be guided throughout the different parts of the template in order to make sure that the uploaded data have been received unaltered.

Integrated checking system

An integrated checking system has been designed, allowing **real-time feedback on errors or missing data** as well as computed figures in both formats of the template. Navigation to other part of the template is only allowed if the results of the checking system are successful. The completion (mandatory vs. optional fields) and the presence of valid data (matching against value ranges, or predefined values) are assessed, formats (text / number / date / link, single / multiple choice fields) are checked, computations are done (output fields) and interlinked data is checked for consistency. If errors are detected at this stage, the system returns the respective notification messages at the top of each page. Note that only after correcting the errors reported, you will be able to go to the next part.

Check your template early in the process. The system may reveal errors requiring further action (correction or re-calculation). This will also help you avoid last-minute mistake in the final rush, when the deadline is fast approaching.

Archive feature

Once a SEAP is analysed by the JRC, an archived version of the template is created. These SEAP template archived versions are visible at any time (in 'read-only' mode) under 'My account' > 'My local authority' and can no longer be modified.

SEAP resubmission feature

The SEAP resubmission feature is foreseen in two cases:

1) **When your SEAP does not successfully pass the full analysis carried out by the JRC** – You will be invited to address the issues raised in the Feedback Report and resubmit your SEAP within six months. JRC will then perform a new analysis.
2) **When your SEAP has been the subject of significant changes** (such as a considerable change in your overall CO_2 emissions reduction target, a shift of priority in your vision and/or the choice of different sectors to be covered by the emission inventories and action plan) – In this case, your SEAP must be re-approved by your decision-making body. Once politically adopted, your SEAP template must be updated and resubmitted. If you wish to use this resubmission feature, contact the Covenant of Mayors Office (info@eumayors.eu).

Further guidance

More detailed step-by-step guidance on the SEAP preparation process can be found in the SEAP Guidebook available in the Covenant of Mayors website library.

Further examples, practical recommendations and virtual demonstrations are available in the Covenant e-learning platform.

If you have any questions, or would like assistance when completing the template, please contact the helpdesk:

- For issues related to the completion of the SEAP template, questions on the Covenant methodological requirements or the use of 'My Covenant' (extranet):
  Covenant of Mayors Office – info@eumayors.eu
- For more specific technical questions on the methodological requirements or issues related to the use of the preliminary online checking application and feedback reports:
  Joint Research Centre – JRC-COM-TECHNICAL-HELPDESK@ec.europa.eu

STEP I – FILL IN THE TEMPLATE

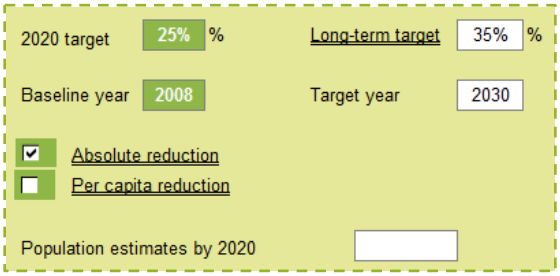
SECTION I – SEAP TEMPLATE

PART I – OVERALL STRATEGY

This first part should provide an overview of your overall strategy, namely your overall CO_2 emissions reduction target, your vision as well as the attribution of staff and financial capacities for SEAP preparation and implementation.

1) Overall CO_2 reduction target

The first field refers to your overall target in **percentage of CO_2 emissions reduction** and the **baseline year** against which the target is set. Your target should be **a minimum 20% reduction by 2020** as foreseen in the Covenant of Mayors official text.



The target can be set as an **absolute reduction** (percentage of quantity of CO_2 emissions in the baseline year) or as a **per capita reduction**. In the latter, 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. The per capita approach is generally opted to facilitate progress tracking when population is foreseen to change significantly. Tick the box corresponding to the option chosen. Should you opt for the per capita reduction target, indicate the **population projections by 2020**.

In case you have a **longer-term target**, i.e. beyond 2020 against the same baseline year, you can as well specify your target and the time horizon to which the target refers. Please note that the commitment taken within the Covenant framework is linked to EU targets in 2020, therefore the CO_2 reduction target has to be estimated to that year. If you have only defined a longer-term target in your SEAP, you are required to extrapolate your 2020 target.

We have adopted a local environmental objective to reduce our carbon footprint. The aim is that by 2050 the city will have a sustainable and fair level of carbon dioxide (CO_2) emissions. The average level of CO_2 equivalent emission per person in Gothenburg will have to be reduced from the current level of about 10 tonnes per person to less than 2 tonnes per person for the goal to be reached. We have also adopted an interim target which states that by 2020 emission levels of CO_2 will be reduced by at least 30 % compared to the levels in 1990.

City of Gothenburg, Sweden, 'The Energy Efficiency City'.

2) Vision

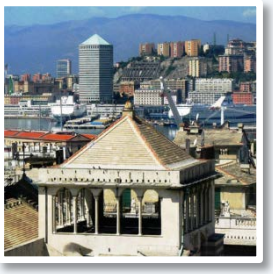
Please define here the long-term vision that will shape the sustainable energy future of your municipality.

Our long-term goal is to make The Hague a climate-neutral and climate-proof city by the year 2040.

The Hague Municipal Government, The Netherlands, 2011, 'Climate Plan The Hague'.

3) Coordination and organisational structures created/assigned

In this field you are invited to provide a short description of the specific administrative structures your local authority has created or assigned to implement your action plan in the framework of the Covenant of Mayors initiative.



The Municipality of Genoa in order to strengthen its energy policy created a specific Energy Office with a task of management and coordination, became a shareholder of the Regional Energy Agency of Liguria Region (ARE) and has strengthened its collaboration with ARE and the University of Genoa in the Energy field. Furthermore, the Municipality has put into operation a Technical Support Structure for the compilation and implementation of the SEAP.

Comune di Genova, Italy, 'Sustainable Energy Action Plan'.

4) Staff capacity allocated

Specify here through the tick boxes which institutions allocate staff for SEAP preparation. When ticking a box, an optional field referring to the number of **full-time equivalent (FTE) jobs** will appear. If you know this information, please provide it as it can be helpful for other municipalities willing to join the Covenant and get started with the SEAP development process.

SEAP preparation:	Full-time equivalent job(s)	**Foreseen for SEAP implementation:**
☑ Local authority	2	☑ Local authority
☑ Local/regional energy agency	1	☑ Local/regional energy agency
☐ External consultant		☐ External consultant
☑ Covenant Territorial Coordinator		☑ Covenant Territorial Coordinator
☐ Other		☑ Other

Note that full-time equivalent (FTE) jobs are defined as total hours worked divided by average annual hours worked in full-time jobs. A FTE of 1.0 means that the person is equivalent to a full-time worker, while a FTE of 0.5 signals that the worker is only half-time.

Furthermore, you can as well specify the foreseen staff during SEAP implementation. This shall be updated at the monitoring stage.

5) Involvement of stakeholders and citizens

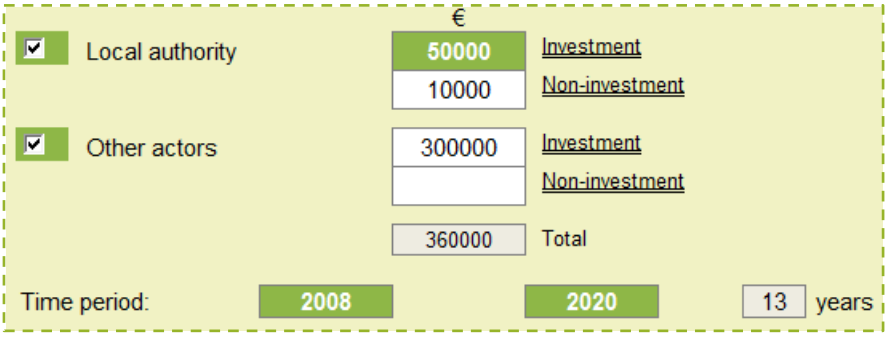
Please specify here how stakeholders and citizens were engaged in the preparation of the SEAP (i.e. which participation methods – public consultation, working groups, forum, workshops – were used, how many people were involved) and how you plan to involve them in the ensuing SEAP implementation.

In the SEAP development phase inhabitants and local stakeholders were involved in data collection for the Baseline Emission Inventory and in consulting the plan. Moreover, current information on SEAP was regularly published on the official city website.

Kościerzyna Municipality, Poland, 2012, 'Sustainable Energy .Action Plan'.

6) Overall estimated budget for the implementation of your SEAP

This section is dedicated to the budget foreseen for the whole implementation of the actions outlined in your SEAP. You should start first by selecting if your budget comes only from the **local authority's own resources** and/or from **other actors**. Afterwards, you should specify the amount of money in **euros** split into **investment** and **non-investment costs** as well as the **time period** to which the budget indicated refers. Although the **investment from the local authority** is the only required field to complete, if you have estimated other costs, you are welcome to report them. In fact, all this information will be extremely relevant at the EU level to understand the amount of investments mobilised at the local level for energy and climate action.



Note that investment refers specifically to the capital to be invested, while non-investment costs integrate all operational and running costs, e.g. maintenance and staff costs, as well as other non-investment expenditures such as the organisation of an awareness raising campaign.

The total implementation cost incorporates investment and non-investment costs and it refers to the investment costs or amount originally invested to implement the actions outlined in your SEAP.

7) Foreseen financing sources for the implementation of your SEAP

Specify the foreseen financing sources for the implementation of your SEAP by ticking the respective boxes. You may also specify the share of each financing source.

The overall investment foreseen, to be carried out until 2020, to implement the Sustainable Energy Action Plan of Funchal is 238.77 million euros. Of this investment, 10.4% is carried out by the Funchal Municipality, 20.1% by the citizens and 69.4% by private and public companies and organisations.

Funchal Municipality,Portugal, 2012, 'Sustainable Energy Action Plan'.

8) Monitoring process

Describe here how you are planning to monitor your SEAP implementation.

The Steering Committee and the 'Covenant of Mayors' working group will be responsible for monitoring, follow-up and evaluation of the implementation progress of the SEAP measures. The two structures will meet on a regular basis (once every three months) and check the progress made so far. Should any delays arise in progress, corrective measures will be adopted in order to get back into track with the foreseen actions and expected results.

Hersonisos Municipality, Greece, 2012, 'Sustainable Energy Action Plan'.

PART II – EMISSION INVENTORIES

In this part, you will start first by completing your **Baseline Emission Inventory (BEI)**. In case you already have other emission inventories at the time of submitting your SEAP, you may add a **Monitoring Emission Inventory (MEI)** after filling in your BEI. In the emission inventories part, you will report data concerning your final energy consumption, local energy production (if applicable), and the emission factors used to calculate your CO_2 emissions.

1) Inventory year

The first inventory year refers to the baseline year, i.e. the year against which the achievements of the emission reductions in 2020 are measured. The baseline year is pre-filled since it is specified under your overall CO_2 emissions reduction target in Part I – Overall strategy. In case you add a MEI, you should indicate here to which year it refers to.

2) Number of inhabitants in the inventory year

Please specify here the number of inhabitants in the inventory year.

3) Emission factors

Emission factors are coefficients which quantify the emissions per unit of activity. CO_2 emissions are calculated for each energy carrier by multiplying final energy consumption by the corresponding emission factor. Two approaches can be adopted:

- **IPCC**[3] – emission factors for fuel combustion – based on the carbon content of each fuel;
- **LCA (Life Cycle Assessment)** – emission factors for the overall life cycle of each energy carrier, i.e. including not only the GHG emissions due to fuel combustion but also emissions of the entire energy supply chain – exploitation, transport and processing.

Tick the box corresponding to your choice of emission factors.

4) Emission reporting unit

Tick the box corresponding to the emission reporting unit adopted:

- **tonnes CO_2** – if you choose to report only CO_2 emissions;
- **tonnes CO_2 equivalent** – if you choose to include also other GHGs such as CH_4 and N_2O.

5) Methodological notes and data sources

State here any methodological notes you consider relevant for the understanding of your emission inventory. You can specify as well the data sources used to collect final energy consumption, energy production or other relevant data (e.g. national statistics bodies, energy suppliers and grid operators, surveys, etc.). This information can be useful for other signatories, mainly for those of your country.

[3] Intergovernmental Panel on Climate Change.

6) Results of your Emission Inventory

This section is divided into three main parts:

- **A) Final energy consumption** – in which you should report final energy consumption data by sector and by energy carrier;
- **B) Energy supply** – in which you should report data related to municipal green electricity purchases and local energy production, if applicable;
- **C) CO_2 emissions** – in which you should report the emission factors applied – making possible the automatic computation of CO_2 emissions.

A) FINAL ENERGY CONSUMPTION

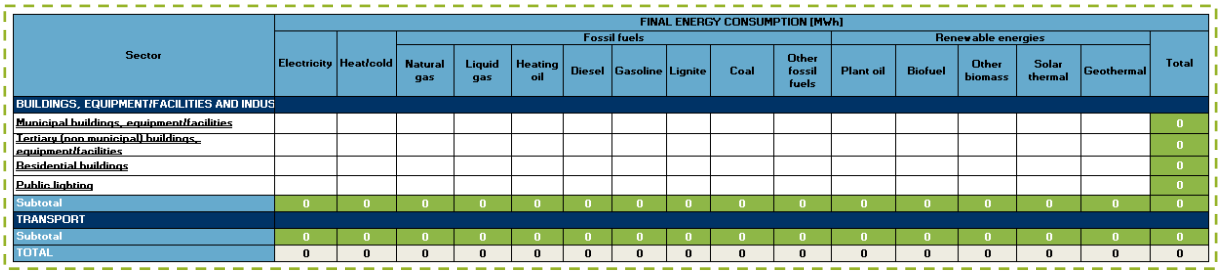
Select the sectors that are included in your emission inventory and for which you would like to report data by ticking the respective boxes.

In the context of the Covenant of Mayors initiative, **four Covenant key sectors** have been identified. They are considered the main sectors where local authorities can influence energy consumption and consequently reduce related CO_2 emissions.

The Covenant key sectors are indicated with a 'key' icon: in the template and are the following:

- **Municipal buildings, equipment/ facilities**
- **Tertiary (non municipal) buildings, equipment/facilities**
- **Residential buildings**
- **Transport**

Based on your selection, the **final energy consumption table** will appear for completion. The first column of the table refers to the **selected sectors**, while the following columns refer to the **energy carriers** (e.g. electricity, heat/cold, natural gas, etc.) used in the respective sectors within the territory of your local authority. Final energy consumption is reported in **MWh** for each energy carrier and each sector.



Sector	FINAL ENERGY CONSUMPTION [MWh]															
			Fossil fuels								Renewable energies					
	Electricity	Heat/cold	Natural gas	Liquid gas	Heating oil	Diesel	Gasoline	Lignite	Coal	Other fossil fuels	Plant oil	Biofuel	Other biomass	Solar thermal	Geothermal	Total
BUILDINGS, EQUIPMENT/FACILITIES AND INDUS																
Municipal buildings, equipment/facilities																0
Tertiary (non municipal) buildings, equipment/facilities																0
Residential buildings																0
Public lighting																0
Subtotal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TRANSPORT																
Subtotal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

- **Sectors**

Table 3 provides a description of the sectors that can be included in the emission inventory under the **'Buildings, equipment/facilities and Industries' macro-sector**.

Table 3 – Sectors included in the emission inventory under 'Buildings, equipment/facilities and Industries'.

Sector		Description
Municipal buildings, equipment/facilities		Buildings and facilities owned by the local authority. Facilities refer to energy consuming entities that are not buildings, such as wastewater treatment plants.
Tertiary (non municipal) buildings, equipment/facilities		Buildings and facilities of the tertiary sector (services), for example offices of private companies, banks, commercial and retail activities, hospitals, etc.
Residential buildings		Buildings that are primarily used as residential buildings. Social housing is included in this sector.
Public lighting		Public lighting owned or operated by the local authority (e.g. street lighting and traffic lights). Non-municipal public lighting is included in the sector of "Tertiary buildings, equipment/facilities".
Industries	**Non-ETS**	Refers to manufacturing and construction industries not covered in the EU Emissions Trading Scheme (EU-ETS).
	ETS	Refers to manufacturing and construction industries covered in the EU-ETS. Integrating them in your emission inventories is not recommended, unless such plants were included in previous energy plans and CO_2 emission inventories of the local authority.
Others		Buildings, facilities and machinery of the primary sector (agriculture, forestry and fisheries), for example greenhouses, livestock facilities, irrigation systems, farm machinery and fishing boats.

The **'Transport' sector** is divided into three subsectors as presented in Table 4

Table 4 – Subsectors included in the emission inventory under "Transport".

Sub-sector	Description
Municipal fleet	Vehicles owned and used by the local authority's administration.
Public transport	Bus, tramway, metro, urban rail transportation and local ferries used for passenger transport.
Private and commercial transport	Road, rail and boat transport in the territory of the local authority which refer to the transport of persons and goods not specified above (e.g. private passenger cars and freight transport).

The template presents the opportunity to report at different sectoral levels in order to accommodate a certain degree of **flexibility** for signatories. This was essentially based on the fact that the data availability and emission inventories' practices differ across local authorities, regions and countries.

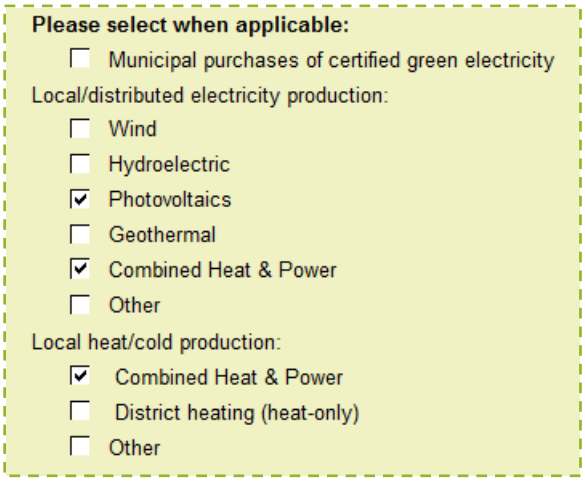
For instance, if you do not have energy consumption data available at the individual sectors' level (residential, tertiary, etc.) in the 'Buildings, equipment/facilities and Industries' macro-sector, you can report aggregated data at the level of the macro-sector. For this purpose, you can click on the **'edit subtotals'** and provide the energy consumption data by energy carrier concerning 'Buildings, equipment/facilities and Industries'. The same applies if you do not have transport data disaggregated by municipal fleet, public transport, private and commercial transport, you can report only the total data of the 'Transport' sector. In order to show which sectors are included in your inventory, please also tick the boxes corresponding to the individual sectors covered by your subtotal at the macro-sector level even if you cannot provide detailed data.

You are highly recommended to provide in table A the most complete set of energy consumption data which is available to you. Only complete templates will allow the JRC to compile relevant statistics on the performance of Covenant Signatories to be communicated at EU level.

The Covenant key sectors should be covered in the emission inventory. When additional sectors are added, related actions in the said sectors should be planned in the SEAP. The data should cover the four key sectors plus other sectors in which you intend to take action, so that the result of those actions can be reflected in the monitoring emission inventories.

B) ENERGY SUPPLY

Please **select the options** describing the diversity of your **energy supply** by ticking the respective boxes. If your local authority does not purchase green electricity or if you do not have any local energy production plants, you can go directly to part C. CO_2 emissions.



According to the box ticked, you will be asked to complete further data. Table 5 lists the energy supply options as well as the corresponding tables to be completed in the template.

Table 5 – Energy supply options and corresponding tables to be completed in the template.

Energy supply options		Table
Municipal purchases of certified green electricity		B1
Local/distributed electricity production	Wind	B2
	Hydroelectric	
	Photovoltaics	
	Geothermal	
	Combined Heat & Power	B3
	Other	
Local heat/cold production	Combined Heat & Power	B4
	District heating (heat-only)	
	Other	

B1. Municipal purchases of certified green electricity

If the local authority is purchasing certified green electricity please provide the **amount of electricity purchased (in MWh)**. Certified green electricity means electricity produced from renewable energy sources covered by guarantees of origins as per article 15 of directive 2009/28/EC.

If you are using **IPCC** emission factors, then by default the electricity emission factor is **zero**. If you are using **LCA** emission factors, you should **indicate the CO_2 emission factor** for the electricity purchased.

Note that only the green electricity purchased by the local authority should be included. Green electricity purchased by other actors should not be accounted here.

B2. Local/distributed electricity production (renewable energy-only)

In the case of electricity generated exclusively from **renewable energy sources**, you should specify the respective **amount of locally generated electricity (in MWh)**. You may choose to report the amount by each plant type or to report only the total, in case detailed information is not available.

B2. Local/distributed electricity production

Local renewable electricity plants (ETS and large-scale plants > 20 MWe not recommended)	Renewable electricity produced [MWh]	CO_2 emission factor [t/MWh produced]	CO_2 / CO_2 eq. emissions [t]
Wind			
Hydroelectric			
Photovoltaics			
Geothermal			
TOTAL			

If you are using **IPCC** emission factors, then by default the electricity emission factor is **zero**. If you are using **LCA** emission factors, you should **indicate the CO_2 emission factor** for the renewable electricity generated.

In order to decide whether or not to include renewable energy power plants in the inventory, you are advised to refer to the decision tree from the SEAP Guidebook (Part II, section 3.4.2).

B3. Local/distributed electricity production

In the case of Combined Heat & Power (CHP) plants, which generate heat and electricity simultaneously, or any other plants not listed in the check boxes, you should report here the **amount of electricity produced (in MWh)**, both **total** and **from renewable energy sources**. As some CHP plants are dual-fuel (or use a back-up fuel) it becomes relevant to distinguish the electricity production that comes from renewables and non-renewable sources. You should also report the **amounts of energy sources used to generate electricity (in MWh)** as well as the **amount of CO_2 emissions (in tonnes)** related to the electricity production (both total and from renewable energy sources).

B3. Local/distributed electricity production

Local electricity production plants (ETS and large-scale plants > 20 MW not recommended)	Electricity produced [MWh]		Energy carrier input [MWh]										CO_2 / CO_2 eq. emissions [t]	
			Fossil fuels					Waste	Plant oil	Other biomass	Other renewable	Other		
	Total	from renewable sources	Natural gas	Liquid gas	Heating oil	Lignite	Coal						Fossil sources	Renewable sources
Combined Heat and Power														
Other														
TOTAL														

In the case of CHP plants, you only report here the electricity produced, while the heat/cold produced is reported in the next table (B4). You will need to report separate figures for the amounts of energy sources used for the production of electricity (in table B3) and for the production of heat (in table B4). It is recommended to use the equation reported in the SEAP Guidebook (Part II, section 3.5.1) to allocate the fuel use between electricity and heat/cold production.

In order to decide whether or not to include electricity production from CHP plants in the inventory, you are advised to refer to the decision tree from the SEAP Guidebook (Part II, section 3.4.2).

B4. Local heat/cold production

If heat/cold is supplied as a commodity to end-users within the territory of the local authority, please indicate the **amount of heat/cold produced (in MWh)**, both **total** and **from renewable energy sources**. You should also report the **amount of energy sources used to generate heat/cold** as well as the **amount of CO_2 emissions (in tonnes)** related to the heat/cold production (both total and from renewable energy sources).

B4. Local heat/cold production

Local heat/cold production plants	Heat/cold produced [MWh]		Energy carrier input [MWh]										CO_2 / CO_2 eq. emissions [t]	
			Fossil fuels					Waste	Plant oil	Other biomass	Other renewable	Other		
	Total	from renewable sources	Natural gas	Liquid gas	Heating oil	Lignite	Coal						Fossil sources	Renewable sources
Combined Heat and Power														
District heating (heat-only)														
Other														
TOTAL														

Note that in principle, the total amount of heat/cold produced should be very close to the amount of heat/cold consumed and reported in table A.

C) CO_2 EMISSIONS

C1. Emission factors

Please **indicate the emission factors** that you have used for your CO_2 emissions calculation. You can visualise **default fuel emission factors** above your input fields in table C1. The emission factors are displayed based on the emission factor approach and reporting unit previously selected. If you have used these default values, you can simply select them.

A list of default emission factors, including for electricity, is provided in annex I. These emission factors can be replaced by country specific emission factors or you can develop your own emission factors based on the detailed properties of the fuels used within your territory.

In what regards the **electricity emission factor**, you should report your **national** electricity emission factor (NEEFE), and if applicable your local electricity emission factor (EFE). The latter only applies if there are local energy production plants in the territory of your local authority. Table 6 provides an overview of both national and local electricity emission factors.

Table 6 – Distinction between National and Local electricity emission factors.

Emission Factor	Definition	When to apply?
National (NEEFE)	Emission factor for not locally produced electricity. It refers to the energy mix used to produce electricity into the national or regional grid**.**	If there is no local electricity production and no municipal green electricity purchases.
Local (EFE)	Emission factor adjusted for locally produced electricity and/or green electricity purchases.	If you have local electricity production plants in the territory of your local authority and/or municipal purchases of certified green electricity.

The **local electricity emission factor** is calculated by applying the formula described in the SEAP Guidebook (Part II, section 3.4.4).

Likewise, the **heat/cold emission factor** (EFH) should reflect the energy mix used to produce the heat/cold that is referred in table A. It is calculated by applying the formula described in the SEAP Guidebook (Part II, section 3.5).

C2. Inclusion of non-energy related sectors

You may voluntarily include non-energy related emission sources in the inventory, if your SEAP includes actions to mitigate these emissions. For instance, you can choose to include CH_4 emissions from landfills, if one of your SEAP actions is to implement landfill gas recovery.

Please tick the box only if you would like to report emissions from the sectors listed in Table 7.

Table 7 – Sectors not related to energy consumption.

Sector	Description
Waste management	Refers to emissions not related to energy consumption, such as CH_4 from landfills.
Wastewater management	Refers to emissions not related to energy consumption, such as CH_4 and N_2O from wastewater treatment plants.
Other non-energy related	Refers to any other non-energy related sector. Negative numbers are allowed in this cell, in case you need to report emissions reduction achieved through e.g. green infrastructures (not recommended for achieving the minimum 20% reduction target and only if you have a specific methodology and data to measure all carbon stock change on the territory).

Note that when including non-energy related sectors such as waste and wastewater management, the emissions must be reported in CO_2 equivalent.

C3. Emission Inventory

After completing all the data specified above, you can click on the 'Generate emission table' button. The **emission inventory output table** is automatically calculated as **the product of final energy consumption** reported in table A **and the corresponding emission factor** reported in table C1. If any data-related issue is identified by the integrated checking system, you will receive the corresponding notification at this stage.

Note that if one of the energy carriers stated in table A refers to two or more energy carriers depending on the sector (e.g. several fossil fuels under the column "other fossil fuels"), it is recommended to calculate a weighted emission factor for that energy carrier. Therefore, you should make separate calculations with the different energy carriers and their respective emission factors, and report the corresponding average emission factor in table C1.

Example for weighted emission factor: If natural gas consumption occurs in two sectors: 'Municipal buildings, equipment/facilities' and 'Transport', the respective emission factors are different. The first corresponds to stationary combustion and the second to mobile combustion. In this example, the natural gas emission factor to be reported in table C1 can be calculated by dividing total emissions (26,502 tCO_2 eq.) by total final energy consumption (130,000 MWh), resulting in 0.204 tCO_2eq/MWh.

Sector	Final energy consumption (MWh)	Emission Factor (tCO_2eq/MWh)	Emissions (tCO_2eq)
Municipal buildings	100,000	0.202	20,200
Transport	30,000	0.210	6,302
Total	130,000	-	26,502

PART III – SUSTAINABLE ENERGY ACTION PLAN

1) Title

Please specify the title of your action plan.

2) Date of formal approval

Please indicate the date of formal approval by the Municipal Council (or equivalent decision-making body for other sub-national levels). Please note that **your plan should only be submitted after being approved by the Municipal Council**. You will not be allowed to enter an approval date in the future in this field.

3) Decision body approving the plan

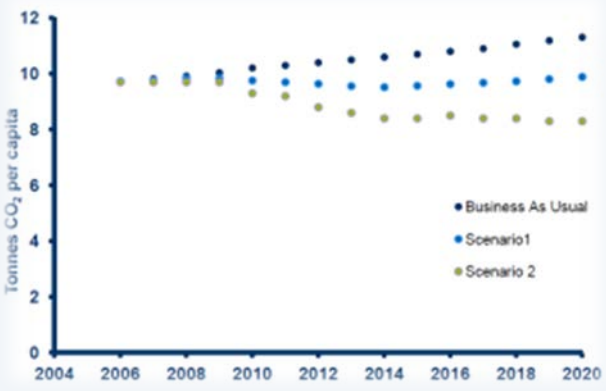
Please provide the name of the decision body approving the plan.

4) SEAP webpage

Please insert the link through which more information about your SEAP can be found.

5) Business-as-usual projections by 2020 (if applicable)

A Business-as-usual (BAU) or reference scenario is defined as a projection of energy demand and CO_2 emissions under the hypothesis of continuing current trends in population, economy, technology and absence of changes in current energy and climate policies. It is commonly called the "do nothing" scenario. In case you have used this approach for the development of your SEAP, you can report here your **projections** in terms of **final energy consumption** (in MWh) and **CO_2 emissions** (in tonnes) by **2020**.



The **SEAP of Dublin** has adopted a **scenario-based approach**. Three scenarios were developed: **business-as-usual**; **scenario 1** which proposes a set of actions that can be easily implemented both in terms of cost and complexity; and **scenario 2** which includes all measures considered in scenario 1 plus more expensive actions that can deliver greater CO_2 reductions.

Dublin City Council & Codema, 2010, 'Dublin City Sustainable Energy Action Plan 2010-2020'

6) Methodological notes

Please describe here any methodological notes you consider relevant for the understanding of your SEAP.

7) Estimates of the impacts of actions in 2020

If you have only inserted the **Baseline Emission Inventory**, you will be providing the estimates of the impacts of your actions in relation to the base year. This is called **option 1** and is selected by default.

However, if you have set a more distant baseline year and calculated also one or more **Monitoring Emission Inventories** (MEIs) you may wish to report the estimates of the impacts of your actions in relation to the data reported in MEIs. This is called **option 2**. You can select from the drop-down menu to which emission inventory the estimates refer. When using option 2, the actions reported are those needed to cover the gap between emissions during one of the recent monitoring years and 2020, while the target is as well calculated on the basis of BEI.

The following examples might help you better understand in which cases the choice of **option 2** might be more relevant.

Example 1: The emissions have considerably decreased between the BEI and a recent MEI.

According to option 2, you report only the actions needed to cover the gap between the MEI year and the 2020 target. Please note that if a very significant reduction has already been achieved between the BEI and the MEI year, prior to the SEAP implementation, you are recommended to set a more ambitious target to 2020 than the minimum 20%.

Example 2: The emissions have considerably increased between the BEI and a recent MEI.

In this case, if you do not take into account the evolution between the BEI and the MEI year, you might face the risk of underestimating the reduction needed to meet your target to 2020. It is therefore recommended to report the CO_2 reduction needed to cover the gap between the MEI year and 2020. The graph below might help you better visualise the difference in the estimates according to the different options.

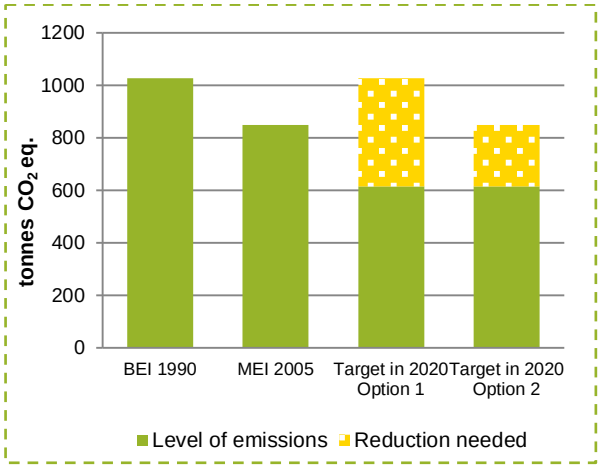


Figure 6 - CO_2 reduction needed according to Option 1 and to Option 2 - Example 1.

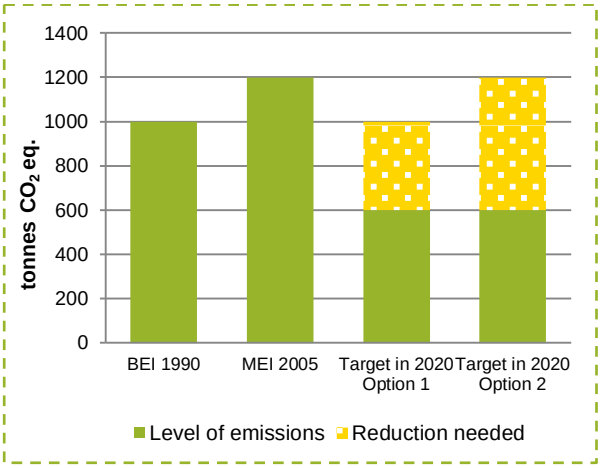


Figure 7 - CO_2 reduction needed according to Option 1 and to Option 2 - Example 2.

Note that if you set a per capita reduction target, the CO_2 reduction needed should be reported in absolute values and calculated multiplying the per capita reduction by the estimated population in 2020.

8) Key actions of the SEAP

This table aims at summarising information concerning the actions planned in your SEAP, both short and long term. In case your SEAP contains a large number of actions, you can report only the ones you define as key actions. However, the totals per sector should include all the actions foreseen in your SEAP. For convenience, similar actions can be grouped under one single action (e.g. installation of PV on the roof of 10 municipal buildings, for 80 kW of total installed capacity).

As a first step, you must fill in the table with sectoral level data. This means that for **each sector** for which actions are defined in your SEAP you should report the overall **estimated implementation cost** (in Euros); estimated **energy savings** (in MWh/a), **renewable energy produced** (in MWh/a) and **CO_2 emissions reduction** (in tonnes/a) in **2020**, the latter three being mandatory figures. The total per sector corresponds to the sum of the expected savings of all the actions foreseen in your SEAP for the said sector. It does not necessarily need to match the sum of the actions reported in the table as you may choose to report only the most significant ones. However, you are highly recommended to insert estimates for as many key actions as possible. This information will enable the JRC to compile relevant statistics on the measures planned and implemented by signatories to be communicated at EU level.

Note that the SEAP should contain actions targeting the Covenant key sectors: Municipal buildings and equipment/facilities, Tertiary buildings and equipment/facilities; Residential buildings; and Transport.

The next step consists in **adding your key actions**. To do so, simply click under the respective sector on the icon 'Add action': . If you wish to delete an action, please use the 'Delete action' icon: and to edit an action, the respective 'Edit action' icon:

Each time you click 'add action' you will navigate to a specific **action form**. Table 8 outlines the information that you should provide for each action. After completing the form you will be redirected to the table, in which your action will appear listed.

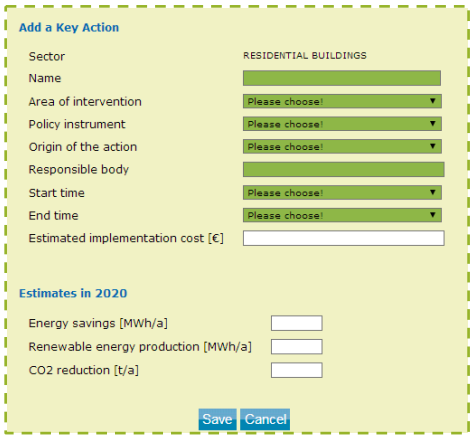


Table 8 – Required fields for action reporting.

Field		Description
Name *		You should provide the title of your action.
Area of intervention *		You should select from the drop-down menu which specific area of intervention is targeted by your action. For instance, if you have an action on 'Thermal insulation of residential buildings' you would select that the area of intervention is the 'Building envelope'. **
Policy instrument *		You should select from the drop-down menu which policy instrument is used to implement your action. For instance, if your action is 'Thermal insulation of residential buildings' you might decide to implement a new building regulation for new houses and in this way your policy instrument would be 'Building standards'. In case you have actions for which there is no policy instrument to be applied you can choose 'not applicable'.
Origin of the action *		You should select from the drop-down menu the authority level which has initiated the action. This field intends to appraise how your action is dependent on other levels of policy decision. For instance, if there is a national legislation on implementing solar thermal panels in new buildings and you have incorporated this action in your SEAP, you should select 'Other (national, regional …)'. If you plan to replace buses for more efficient/low carbon fuel buses and this is a decision made by the Municipal Council, you should choose 'Local authority'.
Responsible body *		Please state the name of the body responsible for implementing each action. Within your SEAP, responsibilities should be assigned to the different departments of your local authority. These might be also third Parties, such as energy utilities, Energy Services Companies (ESCos), local energy agencies or provinces/regions.
Implementation timeframe *		Please indicate the start and end year of each action in order to differentiate the short-, mid- and long-term actions.
Estimated implementation cost		Please provide an indication of the estimated implementation cost for each action (in Euros). The implementation cost refers to the capital required or amount originally invested to implement the action plus the associated operational and running costs involved in the implementation timeframe of such an action. Therefore the implementation cost includes both: investment and non-investment costs. This information will provide some indications on which are the most cost-effective actions.
Estimates in 2020	**Energy savings**	Please enter the estimates on energy savings (in MWh/a), on renewable energy produced (in MWh/a) and on CO_2 emissions reduced (in tonnes/a) by 2020. Note that data on energy savings and renewable energy produced will depend on the type of action. If you have an action on installing photovoltaics in buildings, this will lead to renewable energy produced but not to energy savings. In this case you will only report the expected renewable energy to be produced by 2020 and the associated CO_2 emissions reduced, while the energy savings will be zero.
	Renewable energy production	
	CO_2 reduction	

* Mandatory fields.

** A detailed list of categories and examples is provided in annex II.

In the case of actions added under the transport sector, you will still have the possibility to tick a box in order to report if your action targets the **municipal fleet**, the **public transport** or the **private and commercial transport**.

After completing the mandatory fields for each of your key actions, you can highlight some of them as **Benchmarks of Excellence (BoE)** by using the 'Select as Benchmark of Excellence' icon: ☆ at the end of the corresponding row in the table. Benchmarks of Excellence are actions which your local authority has **successfully implemented** and that have led to significant benefits. Only **on-going** and **completed actions can be marked as BoE.**

After clicking on the icon to select an action as BoE, you will then navigate to the **BoE form**, in which you should provide more detailed information about your action, namely a short description, financing sources and key figures. You can also include links where more information can be found, a picture, a link to a video or upload a pdf document.

The key figures included in the BoE form are essentially energy and financial figures. **Key energy figures** are the ones already included in the SEAP table, namely energy savings, renewable energy produced and CO_2 emissions reduced and are required fields to complete. There is an optional figure related to the number of **direct jobs created**. This refers to jobs that are created directly from the implementation of measures in energy efficiency or renewable energy, such as equipment and installation technicians, energy auditors, public transit operators, green building designers, architects and engineers, among others. You have also the opportunity to add **other figures** that you may find relevant to report for your particular action. This can be for instance the number of passenger-km travelled in public transport or the number of km of bicycle paths. **Key financial figures** allow municipalities to show the most cost/efficient measures they have implemented or will be implemented by 2020. A detailed description of key financial figures is provided in Table 9 and Table 10. These figures are non-mandatory. If you enter the data listed in Table 9 the system will automatically calculate the output figures as described in Table 10.

Table 9 – Description of the input financial figures included in the Benchmarks of Excellence form.

Input field	Description
Life expectancy of the action	Number of years over which the action will generate energy savings or reduce CO_2 emissions.
Discount rate applied	Discounted rate applied to discount the financial savings and the cost of investment. This rate is used to calculate the Present Value of financial savings and the Net present Value of investment.
First year of investment	The year when the first investment has taken place (year 0).
Financial savings	Sum of yearly energy saved (ES) times price of energy (PE)*.
Investment costs	The additional investment linked to the improvement of efficiency or the decrease of CO_2 emissions.
Additional costs	Costs not related to the financing of the measure, e.g. costs incurred to keep an item in good condition and/or good working order. (Maintenance and operation costs/FTE, etc.)

* Please note: If possible, please use the Price of Energy (PE) related to the action in each year, otherwise please use the PE in year 1 as the reference year for the PE in the remaining years.

Table 10 – Description of the output financial figures included in the Benchmarks of Excellence form.

Output field	Description
Present Value (PV) of Financial savings	Sum of yearly energy saved (ES) times price of energy (PE) discounted back to its present value according to the formula: **$F = \sum_{t=1...n} (ES*PE)/ (1+r)t$** Where: ES = annual energy savings PE = price of energy r = discounted rate t = years of investment or years of financial saving n = life expectancy of investment or financial saving
Net Present Value (NPV) of Investment	Total financial savings minus total cost of investment calculated over the life expectancy and discounted back to its present value, calculated according to the formula: **$NPVI = F - \sum_{t=1...n} I_t/ (1+r)t$** Where: I_t = investment at year t r = discounted rate t = years of investment or years of financial saving n = life expectancy of investment or financial saving
Discounted Payback Period	Number of years taken to repay the investment. It is calculated by taking into account the present value of the (cumulative discounted) cash flow taking the start of the first period as zero point according to the formula: **Discounted Payback Period =** $A + \frac{B}{C}$ Where: A = last period with a negative discounted cumulative cash flow B = absolute value of discounted cumulative cash flow at the end of period A C = discounted cash flow during the period after A
Return on Investment (ROI)	Calculated in % terms per year. Expected (discounted) financial savings minus the (discounted) amount originally invested/ divided the (discounted) amount originally invested times 100.

After completing the form, your BoE will be immediately integrated in the catalogue of Benchmarks of Excellence.


BEÁGUEDA – THE ELECTRICAL BICYCLE OF ÁGUEDA FOR FREE PUBLIC USE

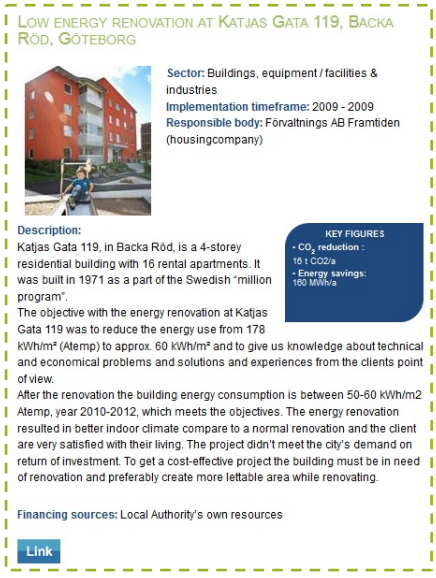
Sector: Land use planning
Implementation timeframe: 2010 - 2020
Responsible body: CMÁGueda/Private

Description:
BeÁgueda is based on SD commitments (CoM/LA21) and implemented in phases so that corresponds to citizens mobility needs: is assessed and re-evaluated based on surveys, usage and evaluation by end-users. It represents an investment in 10 e-bikes, parking and securing stands, a central station (microgeneration panel), monitoring/management system that communicates through WIMAX. beAgueda has already 160 users/more than 4000 usages/20000km in e-bike. Despite the early stage, the project was awarded by the Energy Cities as an innovative initiative that promotes CO2 reduction. For the future, an innovative tracking /monitoring system is being developed by BikeEmotion (UAveiro, private companies), allowing to track, in real time, the e-bike. The APP, allows any user with Smartphone or technology able to go on-line to find each e-bike is available, where it is, the charge, and book it

KEY FIGURES
- CO_2 reduction : 3 t CO2 eq./a
- Energy savings: 9 MWh/a
- Renewable energy produced: 1 MWh/a
- Implementation cost: 20000 €
- In 2 years travelled: 20000 km

Financing sources: Local Authority's own resources, EU Funds & Programmes, Public-Private Partnerships

Link Video


LOW ENERGY RENOVATION AT KATJAS GATA 119, BACKA RÖD, GÖTEBORG

Sector: Buildings, equipment / facilities & industries
Implementation timeframe: 2009 - 2009
Responsible body: Förvaltnings AB Framtiden (housingcompany)

Description:
Katjas Gata 119, in Backa Röd, is a 4-storey residential building with 16 rental apartments. It was built in 1971 as a part of the Swedish "million program".
The objective with the energy renovation at Katjas Gata 119 was to reduce the energy use from 178 kWh/m² (Atemp) to approx. 60 kWh/m² and to give us knowledge about technical and economical problems and solutions and experiences from the clients point of view.
After the renovation the building energy consumption is between 50-60 kWh/m2 Atemp, year 2010-2012, which meets the objectives. The energy renovation resulted in better indoor climate compare to a normal renovation and the client are very satisfied with their living. The project didn't meet the city's demand on return of investment. To get a cost-effective project the building must be in need of renovation and preferably create more lettable area while renovating.

KEY FIGURES
- CO_2 reduction : 16 t CO2/a
- Energy savings: 160 MWh/a

Financing sources: Local Authority's own resources

Link

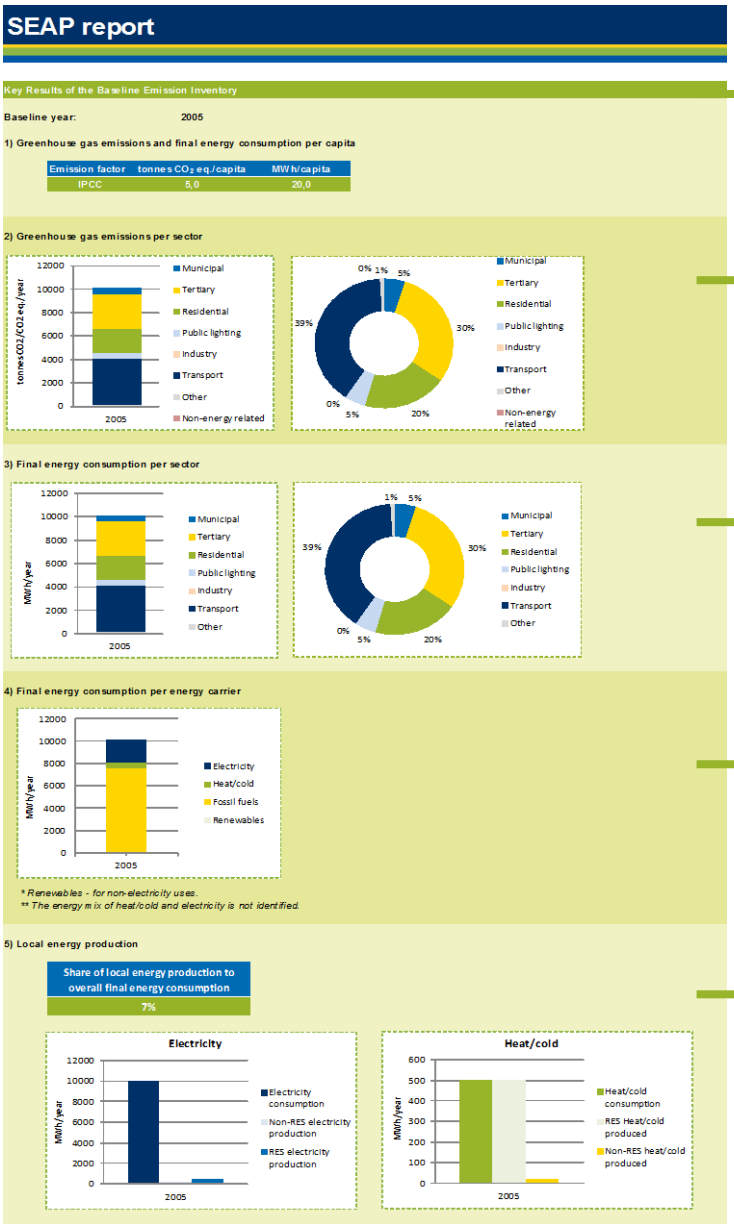
SEAP SYNTHESIS REPORT

The **SEAP Synthesis Report** is generated by the system once the three sections of the SEAP template are complete ('Overall Strategy', 'Emission Inventories' and 'SEAP'). It aims at presenting the information entered into the SEAP template in a **visual and concise manner**. You can visualise your SEAP synthesis report by clicking on the 'See report' button. It shows at a glance, with summary figures and graphs, the key results of the BEI and the key actions outlined in your action plan. Figure 6 and Figure 7 show a screenshot of the resulting report.

You can select, through simple **'publish' tick boxes**, which graphs you wish to display in the Catalogue of SEAPs, under your respective public profile. This allows making your progress and achievements visible to a broad audience as well as encouraging self-assessment and transparent sharing of the data reported.

Note that the level of detail of the graphs you visualise in your synthesis report depends on the level of aggregation of the data entered in the template.

Key Results of the Baseline Emission Inventory



1) GHG emissions and final energy consumption per capita

2) Sectoral breakdown of the GHG emissions

3) Sectoral breakdown of the final energy consumption

4) Breakdown of the final energy consumption by energy carrier (electricity, heat/cold, fossil fuels and renewables)

5) Share of local energy production (if any reported) in overall final energy consumption and local electricity and heat/cold production (renewable and non-renewable)

Figure 8 – Graphical representation of your emission inventory results.

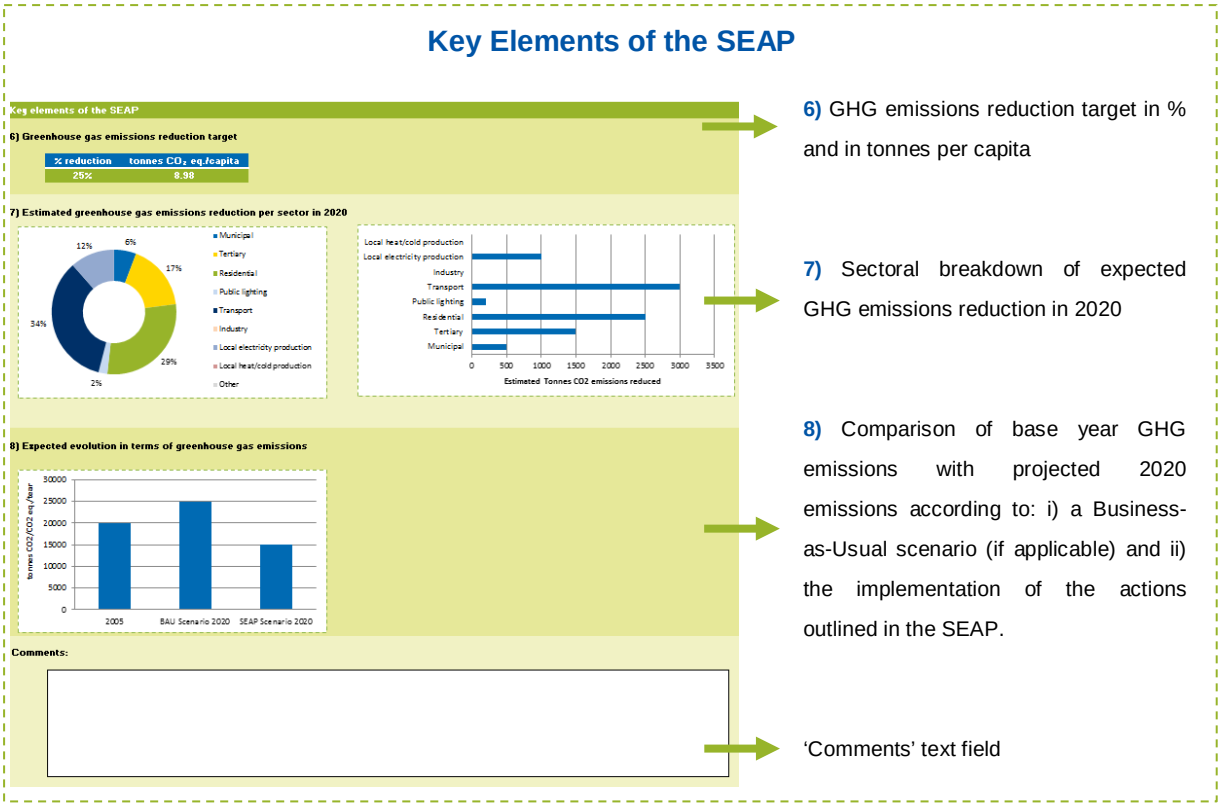


Figure 9 – Graphical representation of your key SEAP elements.

Once the reporting process is completed, make sure to carefully review the generated graphs to spot any mistakes or if fields left incomplete during the data input steps.

If need be, you can also add - explanatory and/or analytical comments in the dedicated text box to ease the understanding of the graphs and tables. You can as well publish these comments in your public profile.

SECTION II – MONITORING TEMPLATE

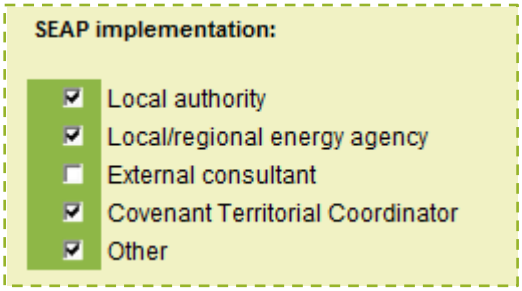
PART I – OVERALL STRATEGY STATUS

Most of the fields in this part are **pre-filled** with the information you have provided in the SEAP template at the SEAP submission stage.

In addition, the following new fields should be filled in:

4) Staff capacity allocated

Please use the tick boxes on the right-hand side (now mandatory) to specify the nature of the staff involved in the SEAP implementation process, i.e. 'in-house' (e.g. from the local authority or the local energy agency) vs. 'external' (consultant, Covenant Territorial Coordinator, other).



6) Overall budget spent so far on the implementation of your SEAP

Please select the origin of the money already spent, namely from local authority's own resources and/or from other actors' resources. Please specify the amount of money already spent in **euros** split into **investment** and **non-investment costs**. Please note that investment costs refer specifically to the capital to be invested, while non-investment costs integrate all operational and running costs, e.g. maintenance costs, people's wages as well as other non-investment costs. The **time period** is to be indicated as well. Your baseline year and the current year when you are carrying out the monitoring will appear selected by default as start time and end time respectively, but you can edit them.

8) Monitoring Process

A new table appears where you can identify the main barriers encountered during SEAP implementation by using a qualitative intensity scale in the drop-down menu (little, fair, strong, not applicable). You can either choose to report your barriers in general for all sectors or report them individually for each Covenant key sector.

PART II – MONITORING EMISSION INVENTORY

In this section, you are invited to include your **latest Monitoring Emission Inventory** (MEI). Covenant Signatories are encouraged to compile MEIs on a regular basis. The minimum requirement in the context of the Covenant of Mayors is to do it **every 4 years**. In this way, subsequent inventories may be compared with the Baseline Emission Inventory (BEI), and progress in terms of emissions reduction can be monitored.

As the reporting structure for the MEI is exactly the same as for the BEI, please refer to the part II of the SEAP template to get further instructions on how to fill it in.

As a first step you should start by selecting the year to which your Monitoring Emission Inventory corresponds in the **Inventory year** field.

Note that some fields will be pre-filled with information that you have provided in your BEI. For instance, the sectors included in your BEI will appear ticked by default and you will also be able to visualise the emission factors entered in the BEI in table C1.

Note that your CO_2 emissions calculation approach and reporting units must remain the same across the different emission inventories. Consequently, these fields are non-editable in MEIs.

Modifications in previously submitted emission inventories are not recommended, unless it is needed to ensure consistency among emission inventories (see SEAP Guidebook, Part II, chapter 7).

PART III – SEAP IMPLEMENTATION STATUS

This part aims at monitoring the implementation status of your actions. The 'Key actions of the SEAP' table is pre-filled with the actions you have specified in the SEAP template.

You can add an action by clicking on 'Add action':  under the respective sector. If you wish to delete an action, please click on 'Delete action':  , if you wish to edit, then click on 'Edit action':  Note that if you delete an action that has an associated BoE it will delete as well your BoE.

Regarding your pre-filled actions, if not previously done in the SEAP template, you should first identify, for each action, the **area of intervention** and the **policy instrument** as well as indicate the **origin of the action**. Please refer to Part III of Section I - SEAP template for further instructions and to annex II where you can find a detailed list of the categories with examples.

Please also check and update, when necessary, the other pre-filled fields such as the **responsible body** and the **implementation timeframe**.

One extra required field allows you to select, through a dedicated drop-down menu, the **implementation status** of your actions:

- Completed – for actions that are concluded;
- Ongoing – for actions that are currently being implemented;
- Postponed – for actions whose start time has been postponed compared to initial schedule (as defined in the SEAP template, 'implementation timeframe' columns);
- Not started – for actions that will start at a later stage, according to schedule.

In the **'implementation cost spent so far'** field, please specify the amount of money spent (in euros) for implementing the actions. The implementation cost refers to the sum of the capital invested and the associated operational and running costs (all funding sources included).

You should also **update the impacts in 2020 of the actions that you can already assess**. This is the case of some of your completed actions.

For example, if you have completed an action described as 'Improving the building envelope of the public library', you can report the measured savings based on information reported on the energy bills for the base year and for the monitoring year. If instead you have completed the action 'Building code: energy performance standards for refurbished buildings', in most cases just a minor part of the expected annual savings in 2020 will have been achieved in the monitoring year, e.g. 15 buildings have already been refurbished according to the standards foreseen in the related action line and it is expected that 30 more buildings of the same construction type will be refurbished between the monitoring year and 2020, with similar annual unitary savings. In such case, the signatory can:

- Revise the 2020 estimates based on the knowledge gained from the first group of refurbished buildings;
- Keep the same estimates as reported in the SEAP, if they are well in line with the savings achieved by the first group of buildings.

If relevant, you might also check and update the 2020 estimates for ongoing, postponed or not started actions.

It is important to highlight that all the estimates are to be reported as annual figures in 2020, assuming that at that time the action will have reached its full potential. You are not required to report estimates based on present level of implementation of the action.

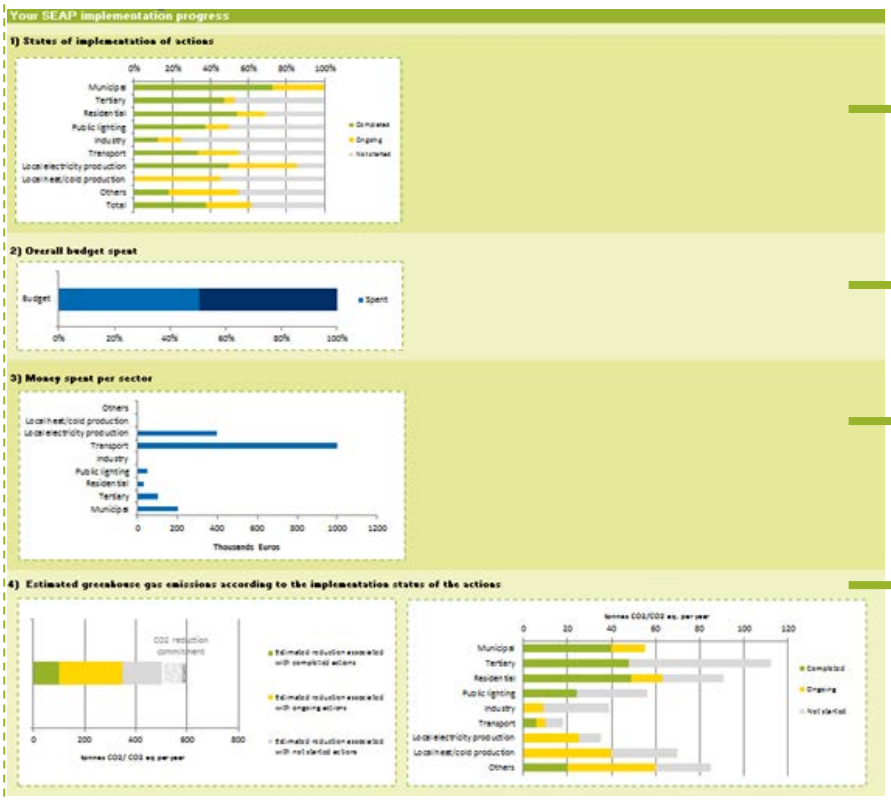
Finally, in the monitoring template you have to highlight a **minimum of three actions** as **Benchmarks of Excellence**. To do so, please click on the 'Select as Benchmark of Excellence' icon: ☆ at the end of the corresponding row in the table. If you have already selected actions as BoEs in your SEAP template, please check that the information previously provided is still up-to-date (especially the associated figures). Please refer to section 8 of Part III of the SEAP template for further instructions.

MONITORING SYNTHESIS REPORT

Similarly to the SEAP Synthesis Report, the **Monitoring Synthesis Report** is generated at the end of the completion of the monitoring template. The resulting graphical elements ease the follow-up of the SEAP implementation (e.g. the degree of implementation of the actions per sector, the budget spent so far), and showcase the progress already achieved (e.g. by comparing the results of the BEI with the results of the successive MEIs), thus enabling a meaningful trend analysis over time. Figure 8 and Figure 9 show a screenshot of the Monitoring Synthesis Report.

Again, you can select, through simple **'publish' tick boxes**, which graphs you would like to display in the Catalogue of SEAPs, under your public profile.

Your SEAP implementation progress



1) Implementation status of reported actions (completed / ongoing / not started) by sector

2) Overall budget spent

3) Sectoral breakdown of the money spent

4) Estimated GHG emissions reduction by implementation status of the actions and by sector

Figure 10 – Graphical representation of your SEAP implementation progress

Your performance towards energy sustainability

5) Evolution of the GHG emissions and final energy consumption per capita over time

6) Evolution of the GHG emissions according to constant and updated National Electricity Emission Factor to show the effect on emissions reduction triggered by a change in the national power grid mix and not directly related to local actions.

7) Evolution of GHG emissions by sector over time

8) Evolution of the final energy consumption by sector over time

9) Final energy consumption by energy carrier (electricity, heat/cold, fossil fuels, renewables)

10) Share of local energy production (if any reported) in overall final energy consumption and local electricity and heat/cold production (renewable and non-renewable)

'Comments' text field

Figure 11 – Graphical representation of your performance towards energy sustainability

STEP II – UPLOAD DOCUMENT

SEAP document upload

Once the template is complete, you can proceed to the next step and go to the 'Upload SEAP document' under the 'Sustainable Energy Action Plan' section. Further supporting documentation or annexes may also be uploaded under the 'Other documents' section.

Specify the filename and the language. The filename should not contain any special characters or spaces. Use the 'Browse' button to locate your file and click the 'save' button so that your file can be duly stored. Your SEAP document will be automatically available in your public profile. You may also decide to make other documents public or not by ticking the 'published online' box.

For the document upload, you should use the PDF format. Other file formats (also zipped or compressed) will not be accepted by the system. Both commercial and free tools to convert files to PDF format are widely available on the internet.

Implementation report upload

At the monitoring stage, **only the 'monitoring template' is required** to be completed and submitted. Therefore, you may upload a document reporting in greater details the implementation of your SEAP – (or eventually an updated version of your action plan if you have any) or directly proceed to the next step (see step 3). The uploading procedure is the same as above.

STEP III – CHECK AND SUBMIT

Preliminary checking[4]

Before proceeding to the final submission, the system gives you the opportunity of a preliminary checking of your template, allowing the detection of errors or inconsistencies. For this, you should click on the **'See notification checklist'** button. Table 10 presents examples of some of the checks that are carried out on the SEAP template at this stage. Another set of checks is carried out on the monitoring template.

Table 11 – Examples of checks carried out to the SEAP template.

Type of checks	What?	Where?
Completeness	The emission inventory data for each key sector and for certain energy carriers (e.g. electricity) is complete.	II – Emission inventories
	The implementation cost data and expected impacts in 2020 are given for most of the actions reported.	III – SEAP
	The key actions reported account for at least 70% of the total estimated impacts in 2020.	III – SEAP
Internal consistency	The estimates on CO_2 emissions reduction and energy savings provided in the SEAP table are lower than the ones reported in BEI for 'Buildings, equipment/facilities' and 'Transport'.	II – Emission inventories III – SEAP
	If heat/cold consumption is reported in table A, heat/cold production must be reported in table B4 and vice versa.	II – Emission inventories
Comparison with default values	The IPCC/LCA emission factors (for most of the energy carriers but also for certified green electricity and electricity not produced locally – when applicable) are compared with default values, as defined in annex I. If the value differs significantly from a pre-defined threshold, the difference is pointed out.	II – Emission inventories
	Total emissions are compared with national averages for the respective year.	II – Emission inventories
	Final energy consumption by energy carrier and by sector is compared with respective national averages.	II – Emission inventories
Correctness vis-a-vis Covenant methodological principles	The electricity generated locally is lower than the electricity consumed.	II – Emission inventories
	The criteria for including the local electricity production plants in your emission inventory are respected (large power plants with more than 20MW should be excluded).	II – Emission inventories III – SEAP
	The biomass and biofuels considered in your emission inventories come from a well-identified and sustainable source (as recommended in box 1, page 61 of the SEAP Guidebook, EN version).	II – Emission inventories

[4] The Preliminary SEAP checking tool will be available by June 2014; the preliminary Monitoring checking tool will be available by October 2014.

The preliminary checking system is merely proposed to ensure that your template is **internally consistent**, and **the basic Covenant requirements are met**. These checks are mainly informative and are run through a parallel online application, developed and managed by the JRC. If notifications are reported, it is up to you to address or to acknowledge them before proceeding with the final submission of your SEAP or monitoring template.

The preliminary automatic checking in the JRC's application will not guarantee that your SEAP will be 'accepted'. The system tries to detect the most obvious mistakes. However, the submission of an ineligible SEAP will not be prevented: this automation has limitations and some eligibility criteria cannot be expressed in a binary fashion. The 'SEAP Feedback Report' (sent by email by the JRC after 'human' analysis) is the only document that prevails in the end.

Submission

In the case of SEAP submission, before submitting it, you will have to acknowledge that your SEAP template is well in line with the SEAP document, the latter being officially approved by an appropriate decision-making body. To do so, tick the corresponding box next to the disclaimer.

The official submission of either your SEAP or monitoring template takes place when you press the **'Submit'** button. A notification acknowledging the submission will appear on the screen.

Without submission, all the reported or uploaded data are simply saved in the Covenant extranet without being recognised as officially submitted. Thus, this leads you to fail in meeting your pre-defined submission deadline.

After submission, **modifications are still possible** - if revisions are needed - before the SEAP analysis by JRC starts. It means that it is the latest version available at the SEAP analysis stage which will be considered by the JRC for its analysis. However note that during the SEAP analysis, the SEAP template will be **locked** and there will be no more possibility to modify it.

ANNEX I – DEFAULT EMISSION FACTORS

This annex presents for each energy carrier a set of **default emission factors for CO_2 and for CO_2 equivalent** according to **IPCC** and **LCA** (Life cycle assessment) approaches. IPPC provides emission factors for fuel combustion which are based on the carbon content of each fuel (IPCC, 2006)[5]. LCA emission factors (JRC, 2009)[6] take into consideration the overall life cycle of each energy carrier, i.e. include not only the greenhouse gas emissions due to fuel combustion but also emissions of the entire energy supply chain – exploitation, transport, processing. In the case of local energy production within the territory of the local authority, this annex also provides the formulas to calculate the local electricity and heat/cold emission factors.

1. Emission factors for fossil fuel combustion

Energy carriers		IPCC		LCA	
SEAP Template	Standard denomination	t CO_2 /MWh	t CO_2 eq. /MWh	t CO_2 /MWh	t CO_2 eq. /MWh
Natural gas	Natural gas	0.202	0.202	0.221	0.237
Liquid gas	Liquefied Petroleum Gases	0.227	0.227	n.a.	n.a.
	Natural Gas Liquids	0.231	0.232	n.a.	n.a.
Heating Oil	Gas/Diesel oil	0.267	0.268	0.292	0.305
Diesel	Gas/Diesel oil	0.267	0.268[a)]	0.292	0.305
Gasoline	Motor gasoline	0.249	0.250[a)]	0.299	0.307
Lignite	Lignite	0.364	0.365	0.368	0.375
Coal	Anthracite	0.354	0.356	0.379	0.393
	Other Bituminous Coal	0.341	0.342	0.366	0.380
	Sub-Bitominous Coal	0.346	0.348	0.371	0.385
Other fossil fuels	Municipal waste (non-biomass fraction)	0.330	0.337	0.181	0.174
	Peat	0.382	0.383	0.386	0.392

[a)] If choosing to report in CO_2 eq, please consider that the emission factors for the transport sector are with up to 3% higher than the values provided here, which are characteristic for stationary sources.

[5] IPCC, 2006. Guidelines for National Greenhouse Gas Inventories. Prepared by the National Greenhouse Gas Inventories Programme. Eggleston H.S., Buendia L., Miwa K., Ngara T. and Tanabe K. (eds). Published: IGES, Japan. Available at : http://www.ipcc-nggip.iges.or.jp/public/2006gl/index.html

[6] JRC, 2009. European Reference Life Cycle Database (ELCD). LCA data sets of key energy carriers, materials, waste and transport services of European scope. Available at : http://lca.jrc.ec.europa.eu/lcainfohub/datasetArea.vm

2. Emission Factors for renewable energy sources

Energy carriers		Sustainability criteria [a]	IPCC		LCA	
SEAP template	Standard denomination		t CO_2 /MWh	t CO_2 eq. /MWh	t CO_2 /MWh	t CO_2 eq. /MWh
Plant oil	Other Liquid Biofuels	(s)	0	0.001	0.171	0.182
		(ns)	0.287	0.302		
Biofuel	Biogasoline	(s)	0	0.001	0.194	0.206
		(ns)	0.255	0.256		
	Biodiesels	(s)	0	0.001	0.147	0.156
		(ns)	0.255	0.256		
Other biomass	Biogas	-	0.197	0.197	n.a.	n.a.
	Municipal wastes (biomass fraction)	-	0	0.007	0.107	0.106
	Wood	(s)	0	0.007	0.006	0.013
		(ns)	0.403	0.410	0.409	0.416
	Wood waste	-	0.403	0.410	0.193	0.184
	Other primary solid biomass	-	0.360	0.367	n.a	n.a

[a] IPCC emission factor should be reported zero if the biofuels/biomass meet sustainability criteria (s); if biofuels/biomass do not meet sustainability criteria (ns) fossil fuel emission factors are instead used.

3. Emission factors for local renewable electricity production

	IPCC		LCA	
Technology	t CO_2 /MWh	t CO_2 eq. /MWh	t CO_2 /MWh	t CO_2 eq. /MWh
Wind power	0	0	n.a.	0.020-0.050[a]
Hydroelectric power	0	0	n.a.	0.007
Photovoltaics	0	0	n.a.	0.024[b]

[a] Based on results from one plant, operated in coastal areas with good wind conditions.

[b] Source: Vasilis *et al.*, 2008, Emissions from Photovoltaic Life Cycles, *Environmental Science & Technology*, Vol. 42, No. 6, p. 2168-2174.

4. Emission factors for electricity by country

Country	IPCC [t CO_2/MWh] * [a]					
	2005	2006	2007	2008	2009	2010
Austria	0.226	0.212	0.202	0.206	0.200	0.204
Belgium	0.288	0.274	0.279	0.269	0.315	0.298
Bulgaria	0.772	0.762	0.880	0.855	0.827	0.823
Croatia	0.328	0.324	0.383	0.333	0.286	0.306
Cyprus	0.875	0.884	0.879	0.868	0.864	0.869
Czech Republic	0.964	0.938	1.012	0.915	0.920	0.935
Denmark	0.411	0.556	0.462	0.426	0.450	0.455
Estonia	0.981	0.868	1.050	0.875	0.766	0.826
Finland	0.182	0.255	0.233	0.201	0.209	0.212
France	0.061	0.054	0.056	0.053	0.057	0.056
Germany	0.619	0.621	0.645	0.626	0.609	0.616
Greece	1.207	1.131	1.178	1.125	1.104	1.126
Hungary	0.563	0.551	0.606	0.593	0.516	0.539
Ireland	0.769	0.726	0.727	0.736	0.702	0.716
Italy	0.491	0.494	0.493	0.484	0.453	0.467
Latvia	0.093	0.121	0.104	0.110	0.117	0.113
Lithuania	0.185	0.144	0.143	0.132	0.161	0.157
Luxembourg	0.428	0.419	0.373	0.320	0.405	0.397
Malta	0.966	1.030	1.048	1.054	1.072	1.052
Netherlands	0.430	0.416	0.427	0.429	0.473	0.452
Poland	1.262	1.243	1.186	1.123	1.141	1.165
Portugal	0.440	0.377	0.339	0.336	0.353	0.361
Romania	0.683	0.741	0.730	0.700	0.652	0.675
Slovak Republic	0.282	0.271	0.241	0.237	0.230	0.240
Slovenia	0.536	0.536	0.539	0.561	0.613	0.582
Spain	0.497	0.451	0.455	0.418	0.378	0.405
Sweden	0.019	0.021	0.023	0.024	0.027	0.025
United Kingdom	0.531	0.554	0.559	0.551	0.521	0.531
EU-28	0.466	0.466	0.471	0.454	0.443	0.451

** When reporting in $CO_{2\,eq}$:*

- *the same emission factor should be used by signatories from: Latvia, Lithuania, France and Sweden*
- *0.001 tCO2eq/MWh should be added to the factors used by signatories from: Croatia, Slovak Republic and Luxembourg*
- *0.002 tCO2eq/MWh should be added to the factors used by signatories from: Austria, Belgium, Hungary, Ireland, Italy, Slovenia, and Spain*
- *0.003 tCO2eq/MWh should be added to the factors used by signatories from: Cyprus, Finland, Malta, Netherlands, Portugal, Romania and United Kingdom*
- *0.004 tCO2eq/MWh should be added to the factors used by signatories from: Bulgaria, Germany and Greece*
- *0.006 tCO2eq/MWh should be added to the factors used by signatories from: Czech Republic, Denmark, Estonia and Poland*

[a] Methodology for the calculation according to: UNFCCC, 2012 (Tool to calculate the emission factor for an electricity system). Sources for the calculation: data on national energy consumption and national energy production per energy carrier from International Energy Agency, 2010 Energy Statistics of OECD Countries; International Energy Agency, 2010 Energy Statistics of non-OECD Countries); data on carbon intensity of each type of fuel from IPCC, 2006 (Guidelines for National Greenhouse Gas Inventories, Chapter 2 - Stationary Combustion); data on efficiency of each carrier according to the technology of electricity production: European Life Cycle Database, 2013 (electricity emission inventories). Consistency checks have been performed comparing results with EDGARv4.2 and v4.2FT2010 for the CO_2 emissions from fuel combustion (cfr. Emissions Database for Global Atmospheric Research (EDGAR) http://edgar.jrc.ec.europa.eu/index.php see also Olivier and Janssens-Maenhout, 2011).

Country	LCA [t $CO_{2\ eq.}$/MWh] [b)]					
	2005	2006	2007	2008	2009	2010
Austria	0.346	0.315	0.294	0.301	0.294	0.301
Belgium	0.418	0.390	0.395	0.373	0.434	0.417
Bulgaria	0.856	0.845	0.971	0.943	0.915	0.910
Croatia	0.537	0.527	0.608	0.534	0.475	0.502
Cyprus	1.020	1.030	1.025	1.010	1.008	1.014
Czech Republic	0.819	0.795	0.855	0.770	0.771	0.786
Denmark	0.673	0.929	0.763	0.699	0.737	0.748
Estonia	1.726	1.528	1.849	1.540	1.322	1.434
Finland	0.345	0.499	0.457	0.383	0.406	0.412
France	0.157	0.141	0.146	0.139	0.148	0.147
Germany	0.709	0.707	0.729	0.707	0.678	0.692
Greece	1.223	1.152	1.195	1.143	1.122	1.144
Hungary	0.675	0.670	0.735	0.711	0.599	0.634
Ireland	0.908	0.862	0.865	0.877	0.838	0.854
Italy	0.721	0.725	0.723	0.710	0.661	0.683
Latvia	0.504	0.608	0.529	0.564	0.610	0.584
Lithuania	0.212	0.165	0.163	0.150	0.180	0.177
Luxembourg	0.699	0.682	0.604	0.514	0.652	0.641
Malta	1.565	1.669	1.697	1.707	1.737	1.705
Netherlands	0.705	0.682	0.709	0.708	0.776	0.743
Poland	1.262	1.241	1.182	1.115	1.125	1.153
Portugal	0.887	0.769	0.690	0.684	0.720	0.734
Romania	1.064	1.146	1.123	1.079	1.008	1.043
Slovak Republic	0.406	0.379	0.335	0.327	0.318	0.334
Slovenia	0.580	0.581	0.582	0.600	0.668	0.631
Spain	0.716	0.652	0.659	0.611	0.557	0.593
Sweden	0.074	0.075	0.076	0.082	0.087	0.083
United Kingdom	0.642	0.669	0.678	0.670	0.631	0.644
EU-28	0.588	0.587	0.592	0.571	0.553	0.565

[b)] Source for LCA emission factors: the European Reference Life Cycle Database (ELCD) has been used as primary source of life cycle emissions related to the different technologies of electricity production http://lca.jrc.ec.europa.eu/lcainfohub/datasetArea.vm (year 2002). Data on national electricity production from different energetic vector is acquired from International Energy Agency, 2010 (Energy statistics of OECD Countries).

IMPORTANT: Regular updates of the default values are foreseen. Please check for the latest version in the Covenant website Library.

ANNEX II – CATEGORISATION OF THE ACTIONS

- **Areas of intervention**

A1	Municipal, Residential, Tertiary buildings, equipment/facilities	Examples of actions
A11	Building envelope	Thermal insulation of walls, windows, roofs; external shading.
A12	Renewable energy for space heating and hot water	Installation of thermal solar panels for hot water.
A13	Energy efficiency in space heating and hot water	Tax deduction for the replacement of old boilers with condensing boilers.
A14	Energy efficient lighting systems	Adhesion of 20 SMEs to the European Commission's GreenLight Programme.
A15	Energy efficient electrical appliances	Incentives for the replacement of domestic appliances for new ones.
A16	Integrated action (all above)	Retrofitting of residential buildings, bundling together technology improvements and insulation measures.
A17	Information and Communication Technologies	Deployment of smart meters in households; installation of Building Energy Management Systems (BEMs) in commercial buildings.
A18	Behavioural changes	Demand Response programmes.
A19	Other	-
A2	**Public lighting**	
A21	Energy efficiency	Replacing light bulbs and luminaries by efficient ones.
A23	Integrated renewable power	Installation of renewable energy powered street lighting and traffic lights systems.
A24	Information and Communication Technologies	Optimal regulation of light intensity in response to changing environmental conditions.
A25	Other	-
A3	**Industry**	
A31	Energy efficiency in industrial processes	Replacement to more efficient boilers or CHP for process heating, replacement of motors, etc.
A32	Energy efficiency in buildings	Ventilation with heat recovery.
A33	Renewable energy	Use of solar cooling for industrial processes.
A34	Information and Communication Technologies	Installation of Building Energy Management Systems (BEMs).
A35	Other	-
A4	**Transport**	
A41	Cleaner/efficient vehicles	Reduced taxes for low emissions vehicles.
A42	Electric vehicles (incl. infrastructure)	Introduction of charging infrastructure.
A43	Modal shift to public transport	Improvement of the public transport infrastructure; Intermodal improvement; Park & Ride.
A44	Modal shift to walking & cycling	Improvement of the walking & cycling infrastructure.
A45	Car sharing/pooling	Introduction of car sharing or car pooling schemes.
A46	Improvement of logistics and urban freight transport	Improvement of rail links with ports.

A47	Road network optimisation[7]	Construction of roundabouts in order to reduce congestion.
A48	Mixed use development and sprawl containment	Implementation of policies to contain urban sprawl in new developments.
A49	Information and Communication Technologies	Teleworking; traffic management; digital signage.
A410	Eco-driving	Education and training of drivers to adopt a fuel-efficient driving style.
A411	Other	-
A5	**Local electricity production**	
A51	Hydroelectric power	Development of a small-scale hydropower plant.
A52	Wind power	Installation of 30 domestic wind turbines.
A53	Photovoltaics	Building-integrated photovoltaics.
A54	Biomass power plant	Construction of a woody biomass power plant (1 MW thermal energy input).
A55	Combined Heat and Power	Construction of a natural gas CHP plant to cover the needs of the local hospital (15 MW thermal energy input).
A56	Smart grids	Implementation of smart grids or smart grids demonstration projects.
A57	Other	-
A6	**Local heat/cold production**	
A61	Combined Heat and Power	Construction of a biomass CHP plant to supply district heating/cooling.
A62	District heating/cooling plant	Construction of the waste to energy facility to supply district heating.
A63	District heating/cooling network (new, expansion, refurbishment)	Renovation of the existing district heating network.
A64	Other	-
A7	**Other**	
A71	Urban regeneration	Redevelopment of de-industrialised areas, according to sustainable energy criteria.
A72	Waste & wastewater management	Zero waste campaign.
A73	Tree planting in urban areas	Campaign one tree for every new-born.
A74	Agriculture and forestry related	Use of more efficient agricultural machinery.
A75	Other	-

[7] Note that according to several studies measures in this area, although common in SEAPs, might induce extra traffic and subsequently increase emissions.

- **Policy instruments**

B1	**Buildings**	
B11	Awareness raising / training	Campaign to encourage the installation of thermostatic valves.
B12	Energy management	Adoption of an Energy Management System for municipal properties.
B13	Energy certification / labelling	Display energy certificates on municipal buildings.
B14	Energy suppliers obligations	Distribution of low-flow shower heads and faucet aerators to citizens by the energy supplier.
B15	Energy / carbon taxes	Imposing higher taxes on fuels depending on their carbon content.
B16	Grants and subsidies	Tax credits for the replacement of boilers by more efficient ones.
B17	Third party financing. PPP	Retrofit of social housing through an ESCo system by Third Party Financing (TPF).
B18	Public procurement	Energy efficiency criteria for the purchase of electrical appliances.
B19	Building standards	Replacement of single glazed windows with low-E double glazing for retrofitted buildings under municipal buildings regulation.
B110	Land use planning regulation	Construction of new residential areas in proximity of a district heating network.
B111	Not applicable	-
B112	Other	-
B2	**Public Lighting**	
B21	Energy management	Implementation of an energy monitoring system for street lighting.
B22	Energy suppliers obligations	Street lighting refurbishment by the energy supplier.
B23	Third party financing. PPP	ESCo mechanism by TPF or Public Private Partnerships (PPP) for the replacement of traffic lights.
B24	Public procurement	Introduction of energy efficiency requirements for street lighting.
B25	Not applicable	-
B26	Other	-

B3	**Industry**	
B31	Awareness raising / training	Publication of best practices for industries.
B32	Energy management	Energy audits.
B33	Energy certification / labelling	Introduction of energy certification of industrial buildings.
B34	Energy performance standards	More efficient use and regulation of waste heat.
B35	Energy / carbon taxes	Tax reduction for companies which invest in energy efficiency measures.
B36	Grants and subsidies	Financial incentives for rational energy use.
B37	Third party financing. PPP	Involvement of an Energy Service Company (ESCo) by TPF for improving the efficiency of compressed air systems.
B38	Not applicable	-
B39	Other	Eco-industrial parks.
B4	**Transport**	
B41	Awareness raising/training	Information campaign to facilitate optimal tyre pressure check. Promotion of sustainable transport.
B42	Integrated ticketing and charging	Introduction of integrated tariff system, allowing people to use several transport modes with a single ticket.
B43	Grants and subsidies	Municipal incentives for purchasing electric bicycles.
B44	Road pricing	Congestion charge.
B45	Land use planning regulation	Policy to limit parking provision near dwellings.
B46	Transport / mobility planning regulation	Introduction of freight traffic limitations in the centre; speed limitation.
B47	Public procurement	Introduction of energy efficiency requirements for bus or municipal vehicles.
B48	Voluntary agreements with stakeholders	Multi-operator ticketing.
B49	Not applicable	-
B410	Other	-
B5	**Local Electricity Production**	
B51	Awareness raising / training	Education campaign on the installation of wind micro-turbines.
B52	Energy suppliers obligations	Installation of PV plants by the energy supplier.
B53	Grants and subsidies	Contribution to citizens for the purchase of wind micro turbines.
B54	Third party financing. PPP	Establishment of a private-public partnership between the local authority (51%) and a private company (49%) for the construction of a CHP plant.
B55	Building standards	New buildings should have PV panels for 25% of roof area.
B56	Land use planning	Identification of areas where the installation of power plants is encouraged (e.g. old industrial areas).

		Planning of new districts having into account the renewable energy potential.
B57	Not applicable	-
B58	Other	-
B6	**Local heat/cold Production**	
B61	Awareness raising / training	Training courses for the construction sector on how to integrate local heat production in new buildings.
B62	Energy suppliers obligations	Installation of district heating systems under energy suppliers obligations.
B63	Grants and subsidies	Subsidies for condominiums connected to a district heating network.
B64	Third party financing. PPP	Development of an ESCo project by TPP to build a small scale district heating system.
B65	Building standards	New buildings should be set up for the connection to a district heating network.
B66	Land use planning regulation	New residential area next to a district heating network.
B67	Not applicable	-
B68	Other	-
B7	**Other**	
B71	Awareness raising / training	Promote awareness of climate change mitigation and adaptation through work-shops and publications.
B72	Land use planning	Urban expansion areas should always foresee a minimum green surface area.
B73	Not applicable	-
B74	Other	-

ANNEX III – EXAMPLES OF INDICATORS

You can find below some examples of indicators that could be used by your local authority to monitor progress (the lists are non exhaustive):

- **Examples of indicators & required parameters that are not included in the template**

Indicators	Parameters required
GHG emissions per unit of Gross Domestic Product (GDP) [t CO_2 or t CO_2 eq./ million €]	Municipal GDP
Public transport ridership [pkm/capita]	Passenger-km in public transport
Energy expenditure in the residential sector [€/year]	Residential end-use energy price per energy carrier
Energy expenditure in the municipal sector [€/year]	Municipal energy expenditure
Energy intensity of buildings [kWh/m^2]	Square meters of building floor area
Carbon intensity of transport [CO_2/km]	km driven by transport category

- **Examples of progress-based indicators for each 'area of intervention'**

Area of intervention	Indicator
Municipal - Residential - Tertiary Buildings	
Building envelope	Number/surface area of buildings insulated [-/m2]
Energy efficiency in space heating and hot water	Number of boilers replaced [-]
Energy efficient lighting systems	Number of lamps replaced [-]
Energy efficient electrical appliances	Number of electrical appliances replaced [-]
Renewable energy for space heating and hot water	Surface area of solar thermal panels installed [m2]
Integrated action	Number/surface area of buildings retrofitted [-/m2]
ICT	Number of buildings with smart meters installed [-] / Number of new buildings with domotic systems [-]
Behavioural changes	Number of participants in awareness raising campaigns [-] / Number of CFLs distributed [-]
Public Lighting	
Energy efficiency	Number of conventional traffic lights replaced by LED [-]
Integrated renewable power	Renewable power installed (kW)
ICT	Number of remote control systems installed [-]
Industry	
Energy efficiency in industrial processes	Number of boilers replaced [-]
Energy efficiency in buildings	Number of lamps replaced [-]
Renewable energy	Renewable power installed (kW)

Municipal - Public - Private Transport	
Cleaner/efficient municipal vehicles	Number of vehicles replaced [-]
Municipal fleet - efficient driving behaviour	Example: no. of courses given on total planned (%)
Cleaner/efficient public transport	Number of new CNG buses purchased [-]
Public transport infrastructure, routes and frequency	Network extension (km) / Number of services per day [-]
Electric vehicles infrastructure	Number of charging points [-]
Car sharing	Number of car share vehicles and locations [-]
Walking &cycling	Number of bicycle parking spaces [-]
ICT	Number of roads with Variable Speed Limits (VSB) introduced [-] / Number of teleworking schemes in place [-]
Efficient driving behaviour	Example: no. of courses/campaigns realised on total planned (%)
Local Electricity Production	
Hydroelectric power	Power installed [MW]
Wind power	Power installed [MW]
Photovoltaics	Power installed [MW]
Biomass power	Power installed [MW]
Combined Heat and Power	Power installed [MW]
Local heat/cold Production	
District heating/cooling network (new, expansion, refurbishment)	Network extension [km] / Number of customers [-]
Combined Heat and Power	Capacity installed [MW]
Other	
Waste management	Amount of waste recycled [tonnes]/Urban waste subject to separate collection (%)
Wastewater management	Number of water pumps replaced [-]
Tree planting in urban areas	Net tree gain [-]
Agriculture and forestry related	Number of farm machinery replaced [-] / Number of pumps replaced for irrigation [-]