



BASELINE EMISSION INVENTORY & SUSTAINABLE ENERGY ACTION PLAN

Converting Your Strategy into Action!

Publication directed by the Covenant of Mayors Office.

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leading in the fight against climate change

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THE COVENANT OF MAYORS, A STRONG POLITICAL INITIATIVE

leading in the fight against climate change

What is the Covenant of Mayors and what commitments do the Covenant signatories have to fulfil?

The Covenant of Mayors is the first European Commission initiative directly targeting local authorities and their citizens to take the lead in the fight against global warming.

All Covenant of Mayors signatories make a voluntary and unilateral commitment to go beyond the EU objectives in terms of CO₂ emission reduction. To reach this objective, local authorities commit to:

- Preparing a **Baseline Emission Inventory**,
- Submitting a **Sustainable Energy Action Plan (SEAP)**, **approved by their municipal council within the year following their official adhesion** to the Covenant of Mayors initiative, and including concrete measures leading to at least **20% reduction of CO₂ emissions by 2020**,
- Regularly publishing – **every 2 years after submission of their SEAP – implementation reports approved by the municipal council** stating the degree of implementation of their key actions and the interim results.



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STEP 1: Signature of the Covenant of Mayors

Creation of adequate administrative structures

Baseline CO₂ Emission Inventory & SEAP development with stakeholders and citizens

STEP 2: Submission of your SEAP

Implementation of the SEAP

Monitoring and reporting

STEP 3: Regular submission of implementation reports

**-20% CO₂
by 2020**

WHY MAYORS JOIN THE COVENANT?

FRANKFURT (GERMANY) – "We have signed the Covenant of Mayors to meet people with the same ambitions, get motivation, learn from each other ..."

HEERLEN (NETHERLANDS) – "Our municipality joined the Covenant of Mayors to have a clear vision and clear goals for the future."



STEP BY STEP TOWARDS -20% CO₂ BY 2020

What is the process that the Covenant signatories are expected to go through in order to meet their commitments?

1. GETTING STARTED

HAVE A CLEAR VISION OF YOUR LONG-TERM STRATEGY

Establish a long-term strategy until 2020 (or beyond)

Have a clear vision of your objectives and a strategy to reach them. In order to achieve the strong political commitment set by the Covenant, a strategic framework for enhancing and better coordinating the energy and climate policies is needed. Main trends and the biggest challenges in terms of CO₂ emission reduction will need to be identified and translated into short- and long term solutions. Making sustainable energy policy part of all key activities of the local authority can be a good way forward.

Set an overall CO₂ reduction target

All Covenant signatories have to define their overall CO₂ reduction target, i.e. the percentage by which emissions will be reduced related to a baseline year. As required by the Covenant of Mayors, their CO₂ reduction target should be at least -20% by 2020. In principle, this reduction is expressed as an "absolute" value. However local authorities with a growing population may set their target "per capita".

Adapt your administrative structure & assign clear responsibilities

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



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■ Involve stakeholders and citizens in your local energy policy

The Covenant signatories agree to mobilise the citizens and establish strong partnerships with the relevant stakeholders (energy agency, utilities, local companies, citizen groups etc.) who will be involved in the preparation and implementation of the whole process.

INVOLVING STAKEHOLDERS

In **MUNICH (GERMANY)** – "The involvement of local stakeholders and citizens is ensured by numerous and regular events, such as annual solar days, energy saving days and open consultation meetings. Also an online consultation panel will be set up to provide guidance to the citizens. This system enables the involvement of all key actors and therefore achieving efficient exchange and cooperation to develop and implement concrete CO₂ reduction projects."

HEERLEN (NETHERLANDS) – "The municipality wants to accomplish its objectives with support from its local stakeholders (citizens, organisations and companies). To succeed, Heerlen is currently implementing a climate-embassy with the most important stakeholders. The climate-embassy will advise the members of the municipal council on the progress and help them to better communicate with the citizens."

■ Estimate and allocate financial resources

All Covenant signatories should identify financial resources for the development and the implementation of their long-term strategy, including the main (re)allocations in the municipal budget, the corresponding time frame and the potential external funding sources (e.g. European, national or regional funding schemes, ESCOs, Public-Private Partnerships etc.).

ELENA, a potential financial facility for Covenant signatories...

The **European Local Energy Assistance (ELENA)** is a technical assistance facility launched by the European Commission in cooperation with the European Investment Bank (EIB). It is designed to provide financing to local authorities for the development of bankable investment projects or programmes in the area of sustainable energy. It also aims to ensure the eligibility of the supported investment projects or programmes for further EIB funding.

FINANCING

In the **PROVINCE OF BARCELONA (SPAIN)** one important source of financing is the European Investment Bank (EIB) and some other local banks. Barcelona Provincial Council has achieved a large scale financing agreement with the EIB, which will be applied in municipalities of all sizes. As the municipalities have limited economic resources, they depend largely on grants and subsidies from different levels of government (province, regional, national and European levels).

2. COMPILE A BASELINE EMISSION INVENTORY

The Baseline Emission Inventory quantifies the amount of CO₂ (or CO₂ equivalent) emissions due to energy consumption within the geographical area (territory) of the Covenant signatory. It identifies the principal sources of CO₂ emissions and their respective reduction potentials. All Covenant signatories can choose their own calculation tools in order to quantify their emissions. However, they need to make sure that the reported inventory is in line with the general principles defined shortly hereafter.

Specify your base year

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

Define your scope

The Baseline Emission Inventory should be based on final energy consumption data, i.e. the amount of electricity, heating/cooling, fossil fuels and renewable energy consumed by the final end-users.

Local energy production should also be included in the inventory if the Sustainable Energy Action Plan introduces actions related to it.

Identify the emission categories

The recommended categories for the Baseline Emission Inventory are: transport, buildings, equipment/facilities and industries. However, Covenant signatories are free to define additional categories in their inventory - if their action plan includes measures to reduce CO₂ emissions in these sectors.

DATA COLLECTION

PROVINCE OF BARCELONA (SPAIN) – "As an official Supporting Structure we collect the relevant energy and CO₂ data from city and town councils, the regional government, and private companies such as electricity, gas, water and other supply companies."



© Province of Barcelona

Define your approach for calculating emissions

Two different approaches may be chosen when establishing the Baseline Emission Inventory at the local level, namely:

- The approach based on **IPCC**¹ principles, covering all the CO₂ emissions occurring due to final energy consumption within the geographical area (territory) of the Covenant signatory.
- The **Life Cycle Assessment (LCA)** approach, considering the overall life cycle of the energy carrier. Hence including all emissions of the energy chain that also take place outside of the territory (such as transport losses, refinery emissions or energy conversion losses).



Apply appropriate conversion factors to quantify your CO₂ emissions

CO₂ emissions have to be calculated for each energy source by multiplying the energy consumption with the corresponding emission factors. There are a variety of emission factors, depending on the energy sources and the selected approach:

- The IPCC provides **default emission factors**, available from the 2006 IPCC Guidelines². These default emission factors could be replaced by **country specific emission factors**. The Covenant signatories can also develop their **own emission factors** based on the detailed properties of the fuels used in their territory.
- For the "LCA approach": the emissions factors are available from different sources or tools, such as the ELCD database, Ecoinvent-CH, GEMIS Software etc.

CALCULATING EMISSIONS

In **MUNICH (GERMANY)**, nearly all inhabitants are supplied by the local utility, which means that all relevant energy consumption data is available. The approximate data is calculated with scientifically developed CO₂ emission factors based on the GEMIS software. In addition, and to achieve comparability with other local authorities, the city of Munich applies the Eco2Region software.

¹ Intergovernmental Panel on Climate Change

² Default emission factors are available in Volume 2, Chapter 2, Table 2.2. (go to page 16).

3. DEVELOP AND IMPLEMENT A SUSTAINABLE ENERGY ACTION PLAN

The Sustainable Energy Action Plan is an operational document that defines a strategic framework for the 2020 objectives. It uses the results of the Baseline Emission Inventory to identify the best areas of action and opportunities for reaching the local authority's CO₂ reduction target. It defines concrete reduction measures together with time frames and assigned responsibilities which translate the long-term strategy into action.

Identify your scope

The Covenant of Mayors concerns action at the local level within the competence of the local authorities. Hence, it is expected that the Covenant signatories will take action in several or all their possible roles:

- **Consumer and model:** All local authorities are responsible for their own energy consumption. At the same time they play an exemplary role by encouraging the citizens and other stakeholders to use energy more efficiently.
- **Planner, developer and regulator:** All local authorities are usually responsible for building, transport and land use planning policies. They have the power to optimise the energy performance of new facilities and to integrate traffic prevention strategies in development planning. They shape traffic/energy performance by legal decisions and regulatory instruments.
- **Producer and supplier:** Local authorities may also act as a local utility or service provider – promoting local energy production and using renewable energy sources (e.g. Combined Heat and Power, district heating systems etc.).

- **Advisor and motivator:** Awareness-raising activities are important to engage the whole community to support sustainable energy policies. Local authorities can act as advisor and educator for citizens and other stakeholders (e.g. architects, planners or craftsmen).

Define your key fields of action

Since the commitments of the Covenant concern the whole geographical area (territory) of the local authority, the SEAP should include actions for both public and private sectors.

Covenant signatories are free to choose their key areas of action. In principle, the SEAPs are expected to cover sectors that are taken into account within the inventory:

- Buildings (including new buildings and major refurbishment),
- Municipal infrastructure (e.g. district heating and public lighting),
- Urban transport and mobility (e.g. municipal fleet, public and private transport),
- Industries and enterprises.

SEAPs should also cover areas where the local authority has a specific role to play, such as:

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

■ Select and prioritise your measures

Develop an action plan with concrete measures and realistic targets. Prioritise – based on the inventory and previous work – and select new measures to be implemented. The SEAP can build on existing climate and energy plans or policies.

PROVINCE OF BARCELONA (SPAIN) – "Our priority areas of action are photovoltaic solar roofs and energy efficiency in public buildings, but we think that we should try to go further and seek solutions such as district heating or the use of biomass, which especially in the rural areas, has great potential. We will also implement long-term measures to reduce the use of private cars and encourage the use of public transport. The problem of urban sprawl will also be addressed and a more sustainable urbanism will be favoured."

HELSINKI (FINLAND) – The SEAP of Helsinki is based on the existing energy efficiency action plan and the regional climate strategy, which will be partly combined, improved and extended into a sustainable energy action plan. Priorities include reducing CO₂ emissions of buildings via low energy building codes targeting both new construction projects and renovation. Also other measures such as small scale renewable energy generation will be implemented.



Source: Wikimedia Commons

■ Specify your implementation process


Your SEAP should include guidance regarding the proposed implementation process for each measure, such as implementation timeframe, assigned responsibilities and anticipated costs.

4. MONITOR PROGRESS

Monitoring progress allows the local authority to measure the effectiveness of its SEAP. Every two years after having submitted a SEAP, the Covenant signatories have to submit an implementation report. This report shows at a glance the results achieved, both in terms of measures implemented and CO₂ emission reductions.

Assess and monitor progress regularly

Monitoring and evaluating results is important for following up on the achievements and for developing future actions and measures. Local authorities should assess the potential emission reductions of the implemented measures to continuously develop and improve their SEAP.



HELSINKI (FINLAND) – "Annual energy audits of the existing building stock allow us to produce new proposals of energy efficiency actions for several buildings. Moreover, new intelligent technologies for monitoring energy consumption and controlling energy efficiency of the buildings are implemented and developed constantly."

MUNICH (GERMANY) – "Energy and CO₂ emission data regarding municipal buildings and facilities are regularly collected and published as annual energy reports. Aggregated energy consumption data of the private households is provided by the utility. Analysis and evaluation of the data is made by the municipal departments."

HOW TO GET SUPPORT FOR YOUR ACTIONS?

What materials and services does the **Covenant of Mayors Office (COMO)** offer to assist Covenant signatories in their implementation process?

1. THE MEMBERS OF THE HELPDESK ANSWER YOUR INQUIRIES

The Covenant of Mayors Office runs the Helpdesk providing all Covenant signatories with information and guidance on the preparation and implementation of their Baseline Emission Inventory and their Sustainable Energy Action Plan.

To ensure individual advice and smooth follow-up of the actions implemented, the helpdesk appoints a **personalised experienced contact** for each local authority after its adhesion.

This dedicated team of professionals also collaborates with:

- **Dozens of Supporting Structures**, i.e. sub-national administrations, public bodies and associations of local authorities, to provide signatories with answers to specific or nationally oriented questions.
- The **Joint Research Centre** of the European Commission, to provide support for more detailed technical questions in relation to the development and the implementation of the Baseline Emission Inventory or SEAP.

2. GET FURTHER GUIDANCE THANKS TO SUPPORT MATERIALS

The Helpdesk has developed various technical and methodological support materials to provide Covenant signatories with guidance and recommendations (to be downloaded on www.eumayors.eu):

- **The guidelines on the preparation of the Baseline Emission Inventory and SEAP:** Based on the practical experiences of cities and developed in close co-operation with the Joint Research Centre of the European Commission, this support package will help Covenant signatories to better draft, implement and report on both their Baseline Emission Inventory and SEAP. The guidelines will provide Covenant signatories with key principles and a clear approach to guide them through the implementation and reporting processes.
- **The Frequently Asked Questions (FAQs)** available on the Covenant of Mayors website: Regularly updated, this set of FAQs is based on the most often registered enquiries related to the Covenant of Mayors initiative and its requirements.

- **The web-based SEAP template:** The SEAP template works as an internet based tool that the Covenant signatories should fill in by themselves (via the restricted area dedicated to signatories) in parallel to the submission of their SEAP. It offers a recommended structure to specify the long-term vision, report the main results of their Baseline Emission Inventory and summarise the key elements of their SEAP. Accompanied by clear instructions on how to fill it in, it also offers practical guidance and clear recommendations on how to develop and implement a Baseline Emission Inventory and a SEAP.



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3. SHARE YOUR EXPERIENCE WITH OTHER SIGNATORIES DURING THE EVENTS ORGANISED BY THE COMO

The Covenant of Mayors Office regularly organises thematic workshops and other events for local authority services responsible for the implementation of the Covenant commitments. These events will support Covenant signatories in translating their strategy into concrete actions through the exchange of experiences and know-how.

► **All upcoming events are listed on the Covenant of Mayors website (go to the "Events" section)!**

COVENANT OF MAYORS WEBSITE:

www.eumayors.eu

CONTACT THE HELPDESK:

- General inquiry about the Covenant of Mayors initiative:
info@eumayors.eu
- Technical inquiry about the development & implementation of the SEAP:
technical.info@eumayors.eu



**Covenant
of Mayors**

Committed to local
sustainable energy

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